THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

HOW DIRECT LABOUR could be made to pay is the subject of suggestions by a correspondent. *p.* 827

SCULPTURE AT RA EXHIBITION is reviewed. *p.* 829

IN BUILDING IN CITY CENTRES to-day, "even public-spirited owners disregard the factor of design, because it does not seem to them to be their business," Sir William Holford stated in his paper at the RIBA on Tuesday. *p.* 838

THE SUBJECT OF STEEL FRAMES FOR BUILDINGS is to be referred to the Monopolies Commission, the President of the Board of Trade has stated. *p.* 844

THE CHEAPEST COUNCIL HOUSE built in 1953-54 (*two-bedroom*) *cost* £1,134 *and the dearest* £1,991 *and the figures for three-bedroom houses were respectively* £1,315 *and* £2,440, *according to statistics prepared by the Institute of Municipal Treasurers and Accountants.* *p.* 850

THE RIBA AND TRADE UNIONISM

TO one type of extremist a trade union is the door to contentment and justice of employment. To another it is the first step down a slippery slope leading to Communist dictatorship. To most of us it is neither of these things, and we are not ashamed to mention the word in the same breath as a profession, for we have been for long accustomed to organisations governing the law and medicine as powerful and active as any of those which govern the railwayman or the miner.

The lively discussion at the RIBA Annual General Meeting (reported in our last issue) may thus be taken at its face value, assuming we can be satisfied that the meeting was representative of the membership at large—a condition difficult to ensure with so widespread a field of residence and practice.

The real question at issue is whether or not the RIBA itself is a sufficient union for the protection of all its members, and from this point of view it is desirable to consider what is the real function a union should have. In this it is by no means certain that the model of the trade unions is a perfect one. If we sought perfection we should go back, perhaps, to the ancient guilds of the crafts and trades where a very broad view of the interests of their members was taken. The question of wages was not by any means the single aim of these bodies, and the traditions which have reached us by history point to an overriding and jealous regard for the dignity of the craft and the protection of the good craftsman from the incompetent who sought to compete with him. It was a proud thing to belong to a body of men holding among them the special skills of their craft which none other could claim.

We feel that it is upon this foundation that all beneficent trade unions must stand if their voices as to working conditions are to carry the maximum weight and their activities achieve the maximum good. It is indeed a solid platform upon which to build, for genuine craftsmen can seldom be ground down into the earth, and seldom have need to demand more than their market worth. The golden rule that the world's judgment, if given free play, generally achieves justice, tends to fail when outside and unrelated interests intervene to disturb the natural level at which the liquid factors of employment settle under the gravity of supply and demand. In an age of full employment the rule has little to disturb it, and the ordinary citizen who suffers inconvenience and hardship through the incidence of strikes may well ask himself whether the trade unions are using the same influence upon their members as did the guilds, and whether, in their insistence upon wage levels, they still bear in mind the obligation of the craftsman to work with skill and energy.

Turning to the architectural profession, we have been more aware of the difficulty of firms and public bodies in finding capable staff than of any shortage of vacancies for properly trained men, and under those circumstances it is difficult to follow the demand for some fresh machinery for promoting the interests of salaried men. The free field seems wide open for recruitment of the right men, and we see no reason why any capable man cannot earn his value in relation to his capacity to earn for his paymaster.

It is very true that there is some reluctance to pay considerable salaries to men who do not know their jobs, or who are temperamentally unable to fit in with the organisation of an office, but that will always persist through good and bad times, though mostly in bad times.

We cannot help feeling that this urge for something more on the pattern of an industrial trade union arises out of a failure to understand what the RIBA really stands for, and the degree of protection it already offers to its members, ranging from a care for the dignity of the architect's calling, the way in which its recruits are trained, and the scale of reward to enable exponents of the art to practise it without undue anxiety about material things.

The first foundation stone of such an institute must be the promotion of fine architecture. Any age which failed to get from its architects work comparable to its history would owe them few obligations beyond a bare subsistence. But if they respond as complete artists and craftsmen they have the right to demand a just reward for their skill. This question is a very pertinent one for these times, but, given such conditions, the next task of a governing body is to see that the skills of the craft are not imitated by the untrained and that the charlatan does not masquerade as an artist, and offer a cheap substitute for the real thing.

Then this body must ensure that young men who enter the profession believing it to be an honourable and dignified calling, are set upon the right lines for earning a living and their minds directed towards the delights and responsibilities which it offers.

Finally, it has to see that the closed profession it has gathered within its fold is not exploited from within by mutual price cutting and the slackness and neglect which such a process promotes.

None of these functions has been ignored by the Institute, whether or not we are all satisfied that their aims have always been energetically pursued, and we have no hesitation in saying that the present structure of the Institute contains all the higher elements which contribute to trade unionism on the guild model.

If the right to strike were considered essential to the maintenance of the profession's position in the community, even that is not an impossible thing to emerge from its constitution, but we should be sorry to see such a happening within the whole or any section of the membership. We believe that this would be the feeling of a large majority of architects, whether in private practice or in a salaried position.

In so far as we think the Institute right to avoid an entanglement with movements which, to further under certain circumstances the cause of their members, may have to use the weapon of the strike, we have previously had no hesitation in thinking the Institute wrong in issuing a questionnaire by the results of which its leaders must be judged to have had no real intention of abiding. We have also criticised the Institute for shortsightedness in withdrawing its skirts metaphorically from the British Architectural Guild which, as an entirely new body, would have tested the support for, and value of an architectural trade union without implicating the RIBA.

Those steps taken, however, we hold the Institute still to be right in refusing to confuse professionalism with trade unionism, and we counsel its members to use their influence towards the better working of existing machinery rather than towards revolutionary additions to its rules and customs. But we can see no reason why the Institute, which has long laid down a scale of remuneration for those of its members in private practice, should not bring up to date and publish for use as a yardstick its scales for salaried architects prepared just after the war and withdrawn in 1951. In a world where power politics are too often the rule, the power of moral persuasion is still pre-eminent when the case is good.

A CRISIS IN BUILDING RESEARCH

THE annual report of the Building Research Board for 1954, which was published last week, is a document which merits urgent consideration both by the Government and the building industry. It contains the disquieting news that the Building Research Station is not to be allowed to share to the same extent as other bodies in the increased Government expenditure on research. The responsibility for this decision rests apparently upon the Advisory Council of the Department of Scientific and Industrial Research. To quote from the Board's report:

"We are informed that the Council has no doubt that there is justification for extending research on building, but that, looking at the problem as one of many within the Department's scope, the Council cannot but recognise that there must be a limit to the proportion of its resources which can be devoted to this activity. While hoping that there would be some further expansion the Council did not expect that the staff should increase, at Government expense, proportionately to the total increase in the Department as a whole. We have since heard that an increase of five per cent. in the staff of the Station, spread over the next four years, has been authorised."

The DSIR Advisory Council suggest that any substantial increase in the resources for building research must be sought from the building industry; one minor way might be for larger firms or collective bodies in the industry to create research fellowships at the Station.

The Council's suggestion that the building industry should assume greater responsibility for research is one with which we fully sympathise; it is in accord with the views which we ourselves have consistently advocated. Nevertheless, we cannot but deplore the decision to restrict Government support for the Station. It is, we believe, a short-sighted decision; it will certainly hamper the proper development of building research, and it may prove a false economy, even in terms of hard cash to the Treasury. As the Building Research Board point out in their report, a very large amount of public money—amounting to £1,000 million in 1953—is committed in building and civil engineering work in the public sector of the national economy. "The annual cost of the Station is small compared with the large savings which are flowing from its work," say the Board, and it is surprising that the Advisory Council have not seen the force of this argument. The Council's decision is all the more astonishing since the staff of the BRS was cut in 1952, owing to Government economy measures, from 477 to 420—a drop of about 12 per cent. The proposed increase of 5 per cent. is, therefore, quite inadequate. In view of the fundamental importance of building to the social and economic life of the country, it is to be hoped that the DSIR will reconsider this matter and that, if need be, the appropriate Ministers of the Crown will not hesitate to intervene. Several Government departments are concerned—for instance, Works, Housing and Local Government, Transport, Education and the three Service Departments.

On the other hand, there is no doubt that the building industry itself ought to do much more in the way of research. The fact is that building is the only major industry which does not have its own establishment for collective research. This is a serious weakness. Even if the BRS is given the money and staff it ought to have, there will still be scope for a research organisation maintained by and responsible to the industry. There are several instances of an industrial research organisation working successfully side by side with a DSIR establishment. Other industries have accepted the position that they have a responsibility for collective research, and the building industry ought to do the same. Although some of the very largest firms do spend substantial sums on their own private researches, and although there is the useful scheme of co-operation in field tests between the BRS and the NFBTE, these things are no substitute for properly organised collective research for the benefit of the whole industry. The failure of the industry to set up a central research organisation does no good to its reputation, but such an organisation would have a number of positive advantages as well.

In the first place the building industry badly needs an organisation for disseminating the results of new research. The BRS maintains a useful information service, but it is unlikely that this will be expanded in the foreseeable future and it may even suffer some contraction. To quote the somewhat guarded language of the Board's report: "We are satisfied that the effort devoted to publications and other information work should not be appreciably increased at the expense of current research which will form the 'capital' for the information services in future years." The Board say that any increase must come from additional resources, but, since these are not likely to be provided at present by the Government, it seems that they would have to come from the industry. If, however, the industry is to raise money for this purpose, it would surely be better for the industry to establish its own organisation and to control its activities.

It is scarcely necessary to dwell here on the many items of new research which might be sponsored by such an organisation. There would, perhaps, be no need—at least in the early stages—to spend large sums on building and equipping laboratories. There is the possibility—mentioned above—of establishing fellowships at the BRS, other work might be placed with the BRS and other bodies on a contract basis. The essential thing is that the industry should be responsible for and maintain control over these activities. The cost of such a scheme would be trivial compared with the annual turnover of the building and civil engineering industries. In view of the critical situation which has now arisen, the time has surely come for the industry to act.

Notes of the Week

CONTROLLING MONOPOLY

"IF Government and local authorities stand together in these matters [of excluding from local authority building work builders who are not prepared to undertake to stand aside from the practices condemned in the Monopolies Commission's report on the supply of buildings in Greater London] they will greatly assist private building owners and their architects who so far have carried single-handed the responsibility of . . . protecting the building owner from possible exploitation and the builders themselves from being publicly named as indulging in price-fixing." The first public move to secure the co-operation of local authorities in this matter (advocated in a leading article from which the quotation is an extract, in our issue of December 31 last) has now been taken by the Ministry of Housing and Local Government. The Ministry, in a circular sent on May 12, invites all housing authorities "to consider, in the light of their own arrangements for dealing with building contracts, what action they can usefully take, in the same spirit as that taken by Government Departments, to implement the recommendations of the Monopolies Commission." The practices of which complaint was made to the Commission are no doubt fresh in the minds of all who have to do with the placing of building contracts; they are recapitulated in a copy of a letter, attached to the circular, which has been sent by the Ministry of Works to all contractors on the Government lists.

That vast part of the building contracting industry which has had no connection with any of the various Builders' Conferences will hope that in common justice to themselves as well as in the public interest housing authorities will indeed consider and act upon the example shown by Central Government Departments. All builders will hope not less ardently that the decision recently taken by the Ministry of Works, to notify in all normal cases within seven days the order of tenderers for works put out to contract, will be followed also by Local Government. It has been the uncertainty in which builders are so often and so unfairly left by building owners, public and private, which more than anything else led to the formation of bodies such as the Builders' Conferences.

Meanwhile, according to Mr. Peter Thorneycroft, President of the Board of Trade, structural steel supply is to be remitted to the Monopolies Commission.

COMING EVENTS

FRIDAY, MAY 20.

RIBA.—Annual Reception. 66, Portland-place. 8 p.m.

BUILDING CENTRE.—Exhibition on Housing, 1945-55. 26, Store-street, Tottenham Court-road, WC1. Daily 9.30 a.m.-5 p.m. Saturdays until 1 p.m. Continuing open until June 4.

MONDAY, MAY 23.

DOLLAR EXPORTS COUNCIL.—Luncheon to members of the American Institute of Decorators. Fishmongers' Hall, London Bridge. 12.30 p.m.

FEDERATION OF MASTER BUILDERS (SOUTHERN GROUP).—Dinner followed by talk by Mr. H. J. Eldridge, BSc (Building Research Station). "Cornet of Horse," Lavender-gardens, SW11. 6.30 p.m.

TUESDAY, MAY 24.

MODULAR SOCIETY.—"Modular Co-ordination in Germany," by Mr. D. Foster, ARIBA. Building Centre, 26, Store-street, WC1. 7.30 p.m.

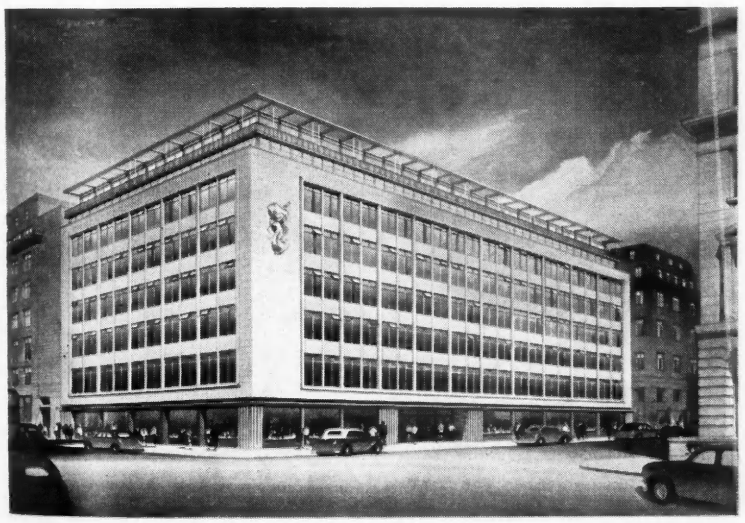
SOUTHERN COUNTIES FEDERATION OF BUILDING TRADES EMPLOYERS.—Half-yearly meeting. Spa Hotel, Tunbridge Wells. 10 a.m. Continuing until May 25.

WEDNESDAY, MAY 25.

INSTITUTION OF STRUCTURAL ENGINEERS.—AGM, 11, Upper Belgrave-st., SW1, 6 pm.

THURSDAY, MAY 26.

TOWN PLANNING INSTITUTE.—Presentation of TPI gold medal to Sir Patrick Abercrombie. Caxton Hall, Westminster. 6 p.m.



OFFICES FOR ATOMIC ENERGY AUTHORITY.—A perspective of a proposed scheme of offices for the United Kingdom Atomic Energy Authority to be built on the site formerly occupied by the Junior United Services Club at the corner of Lower Regent-street and Charles II-street, W1. Associated architects: Messrs. Trehearne & Norman, Preston & Partners and Messrs. Leslie C. Norton. The site has been acquired for investment by London Scottish Properties, Ltd. The building will be faced above first-floor level with Portland stone.

"To avoid identical tenders make certain next time that your steelwork contractors aren't quintuplets!"

The fabricators have long held to the view that identical tenders are not inconsistent with a fair price, though they have done little to explain to a price-conscious public the economics of what appears to the latter to be a stifling of competition. They should now have that chance.

PRICE RING REPERCUSSIONS

THE KNOWLEDGE that price rings exist in the supply of building materials and components seems likely to do British firms and British prestige considerable harm in Commonwealth countries. It is now reported from New Zealand that Wellington City Council, which recently protested strongly against the submission of equal tenders by a number of British firms, has decided to accept a tender for electric cable which is £3,000 below the "ring price."

The Mayor, Mr. MacAlister, announcing this decision, expressed pleasure at the news that the London County Council had taken a firm stand regarding ring-price tenders. He said the New Zealand public, and competitive manufacturers and people in Britain, were clearly agreed that firm steps should be taken. The Monopolies Commission in Britain and the New Zealand and United Kingdom Governments should unite in a concerted effort to deal with the situation.

"ARCHITECTURAL PERSPECTIVE"

AT the Royal Society of Arts recently, Sergei Kadleigh gave the fourth Inaugural Lecture in the series by recently appointed Professors and Readers of the Royal College of Art.

The gravity with which such functions are conducted is a corrective to those of us who do not always take things and people (including ourselves) as seriously as we ought, writes Basil Marriott. In this case it was well suited both to the matter and the manner of Kadleigh's weighty subject. Needless to say, this was not architecture's coloured supplements in the way of Academy "pin-ups," of which most of us have been

Drawn by Lawrence Wright. *From the RA Exhibition.*

LEICESTER TEMPERANCE BUILDING SOCIETY: NEW OFFICES, LEICESTER. Pick, Everard, Keay and Gimson, Architects. Sir Howard Robertson, ARA, Consulting Architect.

guilty in the line of duty, but proved to be a well-composed vista of "live" architecture in its humanistic and sociological context, the vanishing-point, as it were, being the Industrial Revolution.

The composition's foreground was a vertical feature of the kind for which the speaker is now famous. Reminding us that the essential problems, for which circumstances had rendered the Garden City concept obsolete as a solution, still remained, he said that the future lay not in further dumping-grounds for "decanted overspills" (that officialese aptly suggesting a fluid element inconveniently hard to handle) but in "three-dimensional zoning" in urban complexes to which populations were irresistibly attracted. This meant not merely more and taller flats, but what he called "hill towns" where all types of dwellings together with their essential adjuncts provided the means for a full, airy and contained life.

RICS ANNUAL MEETING

THE annual general meeting of the Royal Institution of Chartered Surveyors to receive the council's report for the session 1954-1955, and the results of the ballot for the election of the council for the ensuing session, will be held at 12, Great George-street, SW1, on June 6.

LONDON'S FLOODLIGHTING

THE MINISTRY OF WORKS announces that the floodlighting of public buildings in London, which started on May 1, will continue until the end of summer-time on October 2. During the same period the fountains in Trafalgar-square will play daily from 10 a.m. until midnight.

Floodlighting will be from lighting-up time until midnight. The following buildings are included in the scheme:—Nelson's Column and Trafalgar-square, National Gallery, Admiralty Arch, Admiralty Old Building, Carlton House Terrace, the Horse Guards, the Houses of Parliament (Terrace only, and only during the Parliamentary recess), the Tate Gallery, Somerset House, and the Tower of London.

Big Ben, which was floodlit last year, is not included in this year's list because it is under repair.

Floodlighting of public buildings has now become a regular feature of London life and the MOW are to be commended for continuing it this summer.

THE LMBA LUNCHEON

IN RECENT years the LMBA's luncheon in honour of the Lord Mayor has been the opportunity for many grievances to be aired concerning the slow—and at one time almost non-existent—progress made in the rebuilding of the City of London after the war-time devastation. At Tuesday's luncheon, however when this pleasant annual event was once more celebrated, there were no complaints on this score, and the President, Mr. L. J. Holloway, was able to report that a rebuilding programme in the City of £100 m. (mostly undertaken by LMBA members) was under way.

The Lord Mayor, Alderman Sir Seymour Howard, whose remarks are reported on another page, also contributed some interesting figures about the scale of rebuilding. He went on to express the view, emphasising that this was his personal opinion, that in the rebuilding of the City provision should be made for a certain amount of residential accommodation. In contrast to Sir David Eccles's outspoken remarks on the need for buildings worthy of the great traditions of the City, made at an earlier lunch while he was Minister of Works, neither speaker ventured to make any direct reference to the vexed questions of planning and aesthetics in the rebuilding of the City.

COMPETITIONS OPEN

MONUMENT IN PORTUGAL.—Eliminatory test for international competition for monument to Prince Henry the Navigator at Sagres promontory, Portugal, together with scheme for provision of lighthouse and museum. (At least one architect, one civil engineer and one sculptor to be included in each competing group.) Total cost of work to be not more than 35m. escudos (£1 = 125). First Prize: 90,000 escudos. Promoted by Government of Portugal. Conditions from the Portuguese Embassy, 103, Stone-street, SW1. Closing date: May 31, 1955. *March 11, 1955.*

*, ** *The date in italics refers to the issue of* The Builder *in which fuller details were published.*

COMPETITION NEWS

Development Plan of Ankara

THE decision of the jury in the international competition for the development plan of Ankara has been announced as follows:—

1st, Rasit Uybadin and Nihat Yücel (Turkey); 2, Wolfgang Rudhard, Götz-Dieter Raths and Peter Ahrens (Germany); 3, William Vetter, J. P. Vouga, Hans Marti and Hans Kast.

Mentions.—(1) Radi Birol, Turgut Cansever, Aydin Germen, Abdurrahman Hanci and Maruf Unal. (2) Rauf Beyru, Turgut Tuncay, Ilhan Artuner. (3) Peter von Bohr. (4) Melahat Topaloglu, Bülent Berksan, and Mehmet Ali Topaloglu. (5) Kemal Ahmet Aru, Gündüz Ozdes, Hande Caglar, Ahmet Keskin, Yilmaz Gürer, and Behruz Cinili.

In the following cases the jury decided to buy the plans submitted by the competitors:—(1) John Ratcliff (United Kingdom). (2) J. Deryng. (3) Rudolf Nitch.

The jury was an international panel of 15 under the presidency of Sir Patrick Abercrombie.

Building Exhibition Stand at Olympia

THE DESIGN of a stand at the forthcoming Building Exhibition at Olympia is the subject of a competition which has been organised by Ascot Gas Water Heaters, Ltd. It is open to architects and students who have reached the RIBA Intermediate stage or its equivalent.

The awards will be as follows:—1st, 200 guineas; 2nd, 100 guineas; 3rd, 50 guineas. The promoters, while guaranteeing these awards, do not bind themselves to build a winning award. The appointed assessors are Mr. C. S. Mardall, FRIBA, and Mr. F. R. Yerbury, OBE, HonARIBA.

The stand is to cost not more than £1,800 to build, including plumbing and lighting installations. The author or authors of the winning design will be responsible for the supervision of the erection of the stand if required and will then be paid a fee of 100 guineas for the completion of drawings and work of supervision. They will be assisted in connection with the technical problems which arise in the installation of water heaters, plumbing, etc. Entry forms and details from Ascot Gas Water Heaters, Ltd., 255, North Circular Road, NW10. Closing date for entries is July 8.

LONDON DESIGN CENTRE

BRITAIN is to have a permanent exhibition in London, where well-designed products from British industries will be displayed as a stimulus to her home and export trade. The Council of Industrial Design has announced that the premises of the Design Centre for British Industries will be at 28, Haymarket, SW1, and that arrangements are being made to open the Centre early in 1956. "Design Review," the Council's illustrated index, will be the basis for the selection of exhibits, and the Council's offices and conference room will be in the same building.

CORRESPONDENCE

RIBA AND "OTHER PROFESSIONAL BODIES"

To the Editor of *The Builder*

SIR,—I enclose for your information copy of a letter addressed by my President to the RIBA asking for clarification of their circular letter of April 25, published in your issue of May 6.

I trust you will find it possible to give as much publicity to this as was given to Mr. Spragg's letter.

A. E. WARD, Secretary, The Institute of Registered Architects.

47, Victoria-street, SW1.

COPY

The Secretary, Royal Institute of British Architects, 66, Portland-place, W1.

Dear Sir,—As a member of the RIBA I duly received your letter of April 25. I must confess I am at a complete loss to understand whether the severe strictures and inferences contained in your letter are intended to apply to the second largest architectural body to the RIBA, namely, the Institute of Registered Architects of which I have the honour to be President.

Since your letter has appeared in the technical Press I am asking for a similar courtesy for the sake of clarification and I should feel obliged by an early reply from you since this matter cannot possibly remain as at present.

Yours very truly,
EDWARD PROCTER, President.

DIRECT LABOUR: FACTORS NECESSARY FOR SUCCESSFUL WORKING

To the Editor of *The Builder*

SIR,—The part that Direct Labour organisations have to play in the building industry to-day is a subject which arouses fierce controversy, a controversy from which no satisfactory economic conclusion seems to be emerging.

Many local authorities are turning in desperation to direct labour in an attempt to cut building costs, believing that in the profit margin lies the solution to their problem. Unfortunately few of our "parish pump" politicians are aware how fine is that profit margin, and how quickly it can be frittered away in mismanagement, thereby destroying the very saving which it sought to achieve.

Large-scale building demands high qualities from its managerial staff, and most local authorities are either unable or unwilling to pay the high salaries which would be needed to attract such men from the ranks of the large building firms, where their worth is more usually appreciated.

Management must therefore often fall into the hands of the dubiously-trained building works manager, or those of the architect or engineer already on the spot who, in their guise of "Pooh-Bah," find themselves poorly equipped to tackle problems for which they have neither training nor inclination.

Increasingly the larger building firms are harping on pre-planning as a means of cutting building costs, a concept of planning which our architects seem lamentably unable to stomach but one which direct labour gives unique opportunities to exploit to the full.

It has been pointed out in the RIBA Symposium on High Flats that modern techniques can bring down the cost of multi-storey flat building to a level comparable with housing—a statement to which the cynics have been heard to reply: "Who gets the benefit—the contractor?" That reply is at the present time undoubtedly justified, since a very few efficient contractors tender in competition with a vast majority of comparatively inefficient muddlers. A perusal of published tender figures will often show a difference between highest and lowest tenders of only a few thousand pounds on a million pound contract; the more technically advanced contractor who gets the tender in competition with his more sluggardly competitors, reckoning on their usual 4-5 per cent. profit, should be able to show an overall profit in the region of 9-10 per cent. under present-day conditions where his modern techniques are used.

It is at this end of the scale that direct labour could really show its worth; given a guaranteed programme of work, complete pre-planning, adequate mechanisation, good management and, above all, enthusiasm on the part of the staff, it should be able to build up to 10 per cent. more cheaply than the local competitor.

It is essential, however, that the building programme of the organisation should be sufficient to give adequate writing-off of the heavy capitalisation costs involved. Whereas in the case of thirty or forty direct labour departments in this country the turnover is in the region of £500,000 to £1m. per annum, it would appear foolhardy and grossly uneconomic to do other than realise the savings which could result from such capitalisation.

Modern equipment alone cannot put direct labour on its feet; it must also have technical staff alive to the possibilities, and limitations, of the means by which it proposes to build. Close co-operation between site agents, architects, quantity surveyors and engineers—working at least a year in advance of the sites for which they are planning—must be the objective to be attained if full advantage is to be obtained of the direct labour system. The costs which are involved in payments to technical staff under this system should also be much cheaper than normal, since at 5 per cent. on a £1m. turnover ample money should be available to attract and keep first-rate technical staff of the calibre that is required.

So long, however, as direct labour departments are tied to the apron strings of local government, with its rigid salary scales, impersonal employment, opportunities only for snail-like advancement, buck-passing mentality, changing political colour, and ultimate authority resting in a remote committee which are as likely to make a catastrophic decision as a right one, according to the policy belly-rumblings in the party caucus to which they owe allegiance, then for so long direct labour never really will succeed.

B. C. MEOPHAM.

40, Hollywood-way,
Woodford Green, Essex.

WATER CHARGES

To the Editor of *The Builder*

SIR,—I was extremely interested in your article relating to Water Charges for Building Supplies in your issue dated April 22. Whilst it is essential to consider the builders' point of view and their endeavours to reduce costs, one must also examine the problem from the statutory water suppliers' angle.

In your article you have examined the position for the construction of a single house and linked your findings with the construction of an estate. To my mind, two separate problems arise, and it is not safe to assume that what applies to a single house will automatically apply to a large estate. The first conception one has to consider is that water is a Public Health necessity, and that every endeavour must be made to encourage its use in the domestic field. In order to do this, costs must be kept to a minimum and related to ability to pay rather than quantity used. Therefore, the water undertakings cannot assume that they will get an economic return from each new consumer. The same considerations do not apply to the other services of gas and electricity, and to illustrate this point I would draw attention to the statutory requirement that all new houses must have a piped water supply before they can be occupied. This condition does not apply to the other services.

To return to your article you claim that the cost of water used to construct a £2,000 bungalow at meter rates amounted to 10s. 3d. plus 15s. for fixing and hire of meter. What you failed to add was the builder's cost of construction and demolition of a meter pit to protect the meter against frost, and I venture to suggest that these costs would exceed the £7 charged on percentage rates.

With regard to the building of estates, in most cases new mains have to be laid, and under Section 37 of the Water Act, 1945, a guarantee is required from the builder. This guarantee provides that one-eighth of the cost of the new mains, less any income received from connections to that main, shall be paid for a period of 12 years. Payments in respect of the building supply charges are immediately offset against this guarantee, and for the ensuing years the domestic water rate is usually sufficient to meet the guarantee payment. This means that the builder gets his water main laid free, whereas in the case of electricity services he may be required to make a capital contribution towards the cost of providing the service, if the expected revenue does not reach a percentage of the capital outlay.

One further point I would make, and that is the tendency of workmen to obtain supplies from the nearest source. Therefore once a house is connected to the supply, water may be drawn from the domestic tap rather than from the meter supply.

In conclusion, may I add that the Cuckfield Rural District Council have found it necessary to increase their charges for domestic water rate and metered supplies from April 1, 1955, in order to meet rising costs.

W. L. TRIMM, Treasurer,
North-West Sussex Joint Water Board.

32-40, North-street, Horsham.

"The Architecture of Reconciliation"

A BASIS OF DESIGN

By HOPE BAGENAL

THIS expression—the architecture of reconciliation—which I recently used at the RIBA in connection with the work of John Murray Easton—has caused some questioning, and the Editor of *The Builder* invites me to expand my meaning. I can best do so in a series of notes.

If and when an architect has kept his head through the schools, learned some building construction, observed what has happened to buildings out of doors, plunged into the modern maelstrom and insisted on finding work and *building* instead of writing about building, he then begins to find a number of disconcerting facts. He begins to learn the "conundrum of the modern technical and scientific problem." He is besieged by salesman's information on materials and techniques, some useful, some imbecile and facetious, some very misleading indeed. What use are they for specification? What do they tell of performance? He must select and reject—continuously exercising a personal choice. Turning for help to British Standards Specifications he learns that here again some are most useful, but many impossible to follow and tacitly ignored. He has, on his own authority, to make his choices. He and he only must stand responsible for what he writes down in his specification. So he begins to exercise courage and to take the responsibility of personal decisions on points which will mean trains of cause and effect reaching into the future. He begins to collect his own reliable materials, make his own simple commonsense tests and comparisons; he begins to organise his experience. He begins to want simple foolproof solutions of the common recurring problems.

Then perhaps there comes a failure—in a building of his own or a friend's. Neither the performance of buildings nor building failures are given much attention in the professional Press. One may look at pictures for years and not come across this aspect. But, of course, failures are carefully discussed by practitioners, and sometimes a great deal is to be learned from them. But not always. Often the cause is never discovered for the reason that nobody knew where the bricks came from, what the concrete spec. was, what was in the mortar. So, having that rare thing, an instinct for the practical, he determines to investigate himself—go into the whole subject. Then may come the greatest surprise of all. He may well find that the whole experimental theory of that subject has changed in the last 10 years in the light of new tests and that the fundamental notions he has been working on and taking for granted are now said to be out of date.

THE LONG-TERM BUILDING

And about this time he may find himself summoned to design a library or museum or college building having an expectation of life of at least a hundred years. Having served his apprenticeship on "shack" architecture he must now turn to a wholly different scientific problem—that of the long-term building whose maintenance over the years must be considered. And he may wonder how many revolutions of scientific theory he may come to see in his lifetime, and how many of his buildings in the course of years may come to survive.

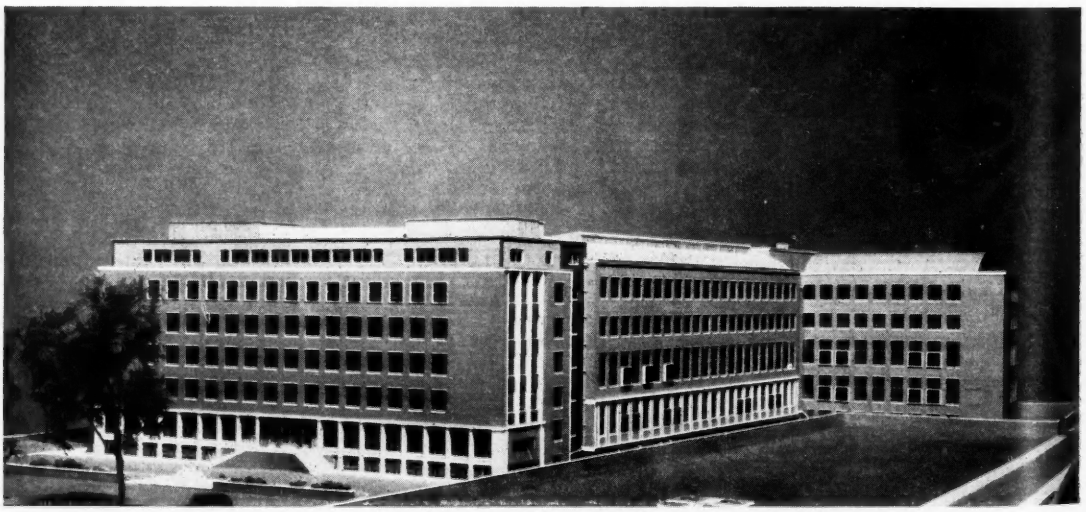
All this merely means that while modern techniques are trumpeted on all hands he is, in fact, inexorably driven back on his own hard-won experience, on his own convictions. Nearly all the new materials have serious defects. He has noted that from a purely scientific point of view clay bricks and cut stone appear to be the only materials without dangerous thermal and moisture movements. All the range of concretes and reconstructed stones move and continue to move and cause a series of unsolved problems connected with the curtain wall. But this may lead on to something else. A study of water-proofing failures may point to the fact that many of the older techniques, so far from being merely style bits, are useful long-term experiments with a *rationale* of their own, in face of the open-air conditions which do not change. The scientific terms seem to include the fact that water-proofing and sun-proofing remain a constant.

And this may lead to a new and interesting view of the two great European styles (still deliberately employed by traditionalists) the Gothic and the Classic, as each an organising of long-term climatic experiments; one in water-proofing and rainwater disposal, the other in sun-proofing and heat insulation. And here I suggest that water-proofing of a thirteenth-century Gothic building was far more *scientific* (if the term has any meaning) than anything achieved in Renaissance or modern times, and we shall be forced in time to learn some of its purely functional lessons.

Also (since today the builder is a business man primarily, and craftsmanship is almost dead) the need for recognisable parts, each with its functions, the need for simplifications and desirable foolproofings, is not less but more. Then it is that there creeps upon the mind the true meaning of tradition, and the realisation that architecture is the art of rough generalisations and approximations, not the art of close calculations and definings like engineering. But this poses the whole of the scientific problem in terms different from those of engineering.

THE SANCTIONS OF WEATHER

Another point is that our land situation, in the Gulf Stream yet exposed to polar and continental winds from north and north-east, in fact gives us a climate unique in its variability. Variability is



NEW CHEMISTRY LABORATORIES, CAMBRIDGE UNIVERSITY. J. MURRAY EASTON, FRIBA (Easton & Robertson), Architect.

the great enemy of building materials. Our climate is always, as I said at the RIBA, prising at joints. It is always enforcing its terrible sanctions on every new generation of innocents.

But now let us look at the other side. There are a number of modern empirical experiments and contributions of real value waiting to be embodied in long-term building. What I mean by the Architecture of Reconciliation is that we should look with the same cool, experimental eye on the traditional, and on the modern, solutions of the problems before us, willing to use any or all that give us an excellence and a coherence. But this will mean an enlarging of modernist theory to include a wider time-span and a study of climatic conditions. In his recent talks on the BBC about architecture and its problems today I could not find that Mr. Maxwell Fry discussed physical climate at all, only the "climate of thought." The climate of thought may be a hot-house climate. It is the physical climate that governs architectural theory. And today this is urgent because our Commonwealth has different climates.

And once having taken this broad experimental and open-minded view, fertilised from the continuities of the past yet absorbed in modern problems and dog fights, it may well come about that the older experiments prove themselves of more value for the outside of a building, for skins and roofs, while the newer are of great use for bones, arteries, organs of all kinds. And my interpretation of Easton's work was that while actually more interested in new developments, the lesson of his new School of Chemistry at Cambridge was that he had planned for invention and experiment but constructed for durability and maintenance.

But let us make no mistake. This attitude means the thinking out of an artistic theory, as well as all the labour of personal experiment and research. And every office today should be its own school of research and recording of performance (specifications should be carefully preserved), and its own school of artistic thought. It may also mean the rejecting of some fashionable romantic theories about science, in favour of a more realistic approach. But though we are in an age of fever and flux inimical to the genius of architecture, though the great Insolubles seem to wait around us with open mouths, I do not despair because of the presence of a certain imponderable factor. It is the consciousness of an invincible creative Impulse waiting not to be worshipped but to be discriminated and controlled.

YEAR BOOK

The current year book and classified directory of the Westminster Chamber of Commerce, Mitre House, 177, Regent-street, SW1, has recently been published. It includes a list of the departments of the Board of Trade; principal government and public offices; embassies and legations of foreign states in London; United Kingdom commercial representatives overseas; British Chambers of Commerce; and an alphabetical and classified list of members.

SCULPTURE AT THE ROYAL ACADEMY

Reviewed by MARJORIE MORRISON

THE private view over, word went round the studios, the clubs and the pubs, of the "betterness" of this year's Royal Academy—young and vital work by the young and younger work by the old. So, expecting the best instead of the worst we started on our annual peregrination determined to do our duty by the sculpture and not to look at a single picture on the way. A turn round the Central Hall and the Lecture Room quickly established the fact that the "betterness" does not extend to the sculpture. A pretty stodgy lot, we felt, with little to praise and, on the other hand, little to find fault with.

Portraiture is perhaps the Academy sculptor's strongest suit. Even at its very worst the portrait in bronze, wood or terra-cotta, perhaps owing to the intrinsic quality of the material, can never be so bad as the bad portrait in paint. Actually the large number of portraits in this exhibition are of a very high standard technically but unfortunately there is not a real thrill among them.

We single out three to talk about. There is the bronze bust of Sir Gerald Kelly, Past President of the Royal Academy, in robes and chain of office. In this skilful and sensitive portrait the penetrating eye, understanding mind and clever hand of Maurice Lambert expose the lively character of the man underlying the dignity of the president. The pose, giving emphasis to the hands, is a happy one. As a presentation or official portrait it is admirable. Now we come to something quite different. "Hugo Wortham" by Dora Gordine is a smallish head in greened bronze with the classic quality that makes us pick out Dora Gordine's work. The technique is calm and unobtrusive and the subtle character of the sitter is quietly expressed but not dramatised. How good this head must look in sympathetic surroundings and how hard the inevitable Academy clutter is on the smaller pieces. The third portrait that makes an impression is that of T. B. Huxley-Jones by Bainbridge-Copnall. There is no calmness here, the technique is violent but it suits the subject. Accidentals are stressed—the twist to the mouth, the twist to the tie, the pouches under the eyes. It is one of the most vital heads in the show.

"French Conversation Piece," a terra-cotta by Audrey Blackman.

Panel for Lloyds Bank, Portsmouth, designed by James Woodford, CBE, RA, FRBS.

Other portraits worth noting are two busts, one of Rita Ling by John Skeaping and (returning the compliment), one of John Skeaping by Rita Ling. Both are forceful realistic studies. Then, although hardly in the category of portraiture, there is "Naiad," a head by Eva Castle in white and coloured mosaic. The effect is charming and somewhat baroque and we can easily imagine "Naiad" in some damp nook in the gardens of Villa d'Este.

ARCHITECTURAL WORK

A search for good work under the heading architectural is rather unrewarding but there are two or three interesting exceptions. One of these is "St. Augustin of Hippo," a half-size model for a stone carving on St. Augustin House, EC, by John Skeaping. To those of us who are tired of formal figures, with all expression conventionalised away, the naturalness and simplicity of this figure is very refreshing. Skeaping shows St. Augustin not as the bishop in Proconsular Africa but as the tormented Christian, clutching to his heart what we take to be the "Confessions." John Skeaping shows also a striking crucifix, in burnt yew-wood, seemingly made from entangled tree branches. It has a strange primitive quality which is rather moving and it is interesting to compare it with the very conventional crucifix, also in yew-wood, for Wells Cathedral by Estcourt Clack.

Now we turn to a purely decorative panel by James Woodford for Lloyds Bank, Portsmouth. The figure of young Neptune is designed to fill a circle within a square. The composition is

Sir Gerald Kelly—a bronze bust by Maurice Lambert, RA.

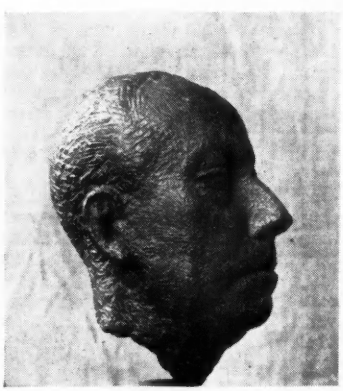
admirable but in spite of nice relief modelling the effect is rather mechanical. Mr. Woodford can, of course, do this sort of thing standing on his head, and do it very well, but it is the fault of client and architect that he is seldom required to do anything that would put him on his mettle.

A "GARDEN" PIECE

There is one more piece, architectural or rather monumental in character, that arouses interest. "Musician," carved in Purbeck stone by Mary Spencer Watson, would look wonderful in a garden. The musician is a nice fat woman squatting on the ground with a stringed instrument held between her knees. Her head is thrown back with shut eyes; she is not playing but listening to sounds somewhere. The composition fits more or less into a square and looks good from all round. Architects, please note, here is a sculptor to be entrusted with something important.

Before we finish with works of important size mention must be made of "Girl in Chair," by Sydney C. Harpley, which is placed in Gallery VIII. Every single critic has picked this out as perhaps the most vital and interesting thing in the exhibition. We certainly do not disagree with the verdict. The artist is a very clever young man. Of course he has looked at a lot of Continental work; of course he admires Manzú, and why not, as long as he contributes something of his own, which he very definitely does. We omit a description, but readers, do go and see it.

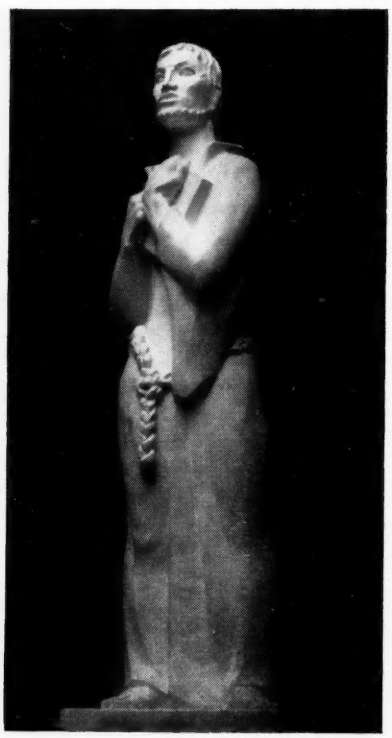
There remain now only the little things in their usual home in the showcase. Audrey Blackman appears again with two statuette groups in terra-cotta, both lovely but perhaps "French Conversation-piece" wins the prize. It really is a conversation—"she" has a fowl slung over one arm, "he" is just one big shrug, and anyone can see that money comes into the argument. Marian Morris shows two earthenware statuettes, both highly stylised costume pieces of exquisite workmanship. Our reaction to the small pieces is, briefly, how beautiful, and how buyable. To end on a sad note, there is a problem that haunts us at every Academy: the problem of the sculptor who goes on exhibiting, every year, the large, competent, female life study that nobody wants. Unsuitable for either a provincial gallery or a Herts. school, a home or a garden, these pathetic women have no future except a return to existence under a sheet in many a dark corner in many a studio. This year she is called "Voodoo."



Hugo Wortham—a bronze head executed by Dora Gordine.

SITE LABOUR STUDIES

"Site Labour Studies in School Building" is the subject of Ministry of Education Building Bulletin No. 12, now published by HMSO, Price 3s. 6d.



St. Augustin of Hippo: model for stone carving for St. Augustin House, EC, by Professor J. R. Skeaping, ARA.

SOCIETIES

ARCHITECTURAL ASSOCIATION

Scholarships in Architecture, 1955

THE Council of the Architectural Association announce the award of the following scholarships tenable at the Architectural Association School of Architecture.

Leverhulme Scholarship (Value £2,000 over five years): A. W. Anderson (City of Norwich Grammar School).

Allied Ironfounders Scholarship (presented by the Allied Ironfounders, Ltd., value £75 per annum): M. S. Higgs (University College School, London).

Metal Window Scholarship (presented by the British Metal Window Manufacturers' Association, Ltd., value £75 per annum): K. F. Routledge (Carlisle Grammar School, Carlisle School of Art).

The Graham Laidler Memorial Scholarship (Presented by his Fellow Students; value £75 per annum): C. A. Pearce (University College School, London).

1933-38 *Students' Scholarship* (value £75 per annum): G. M. Hallett (Cheltenham College, Cheltenham School of Art).

The "Architect and Building News" Scholarship (value £75 per annum): J. R. Gosling (Bancroft's School, Essex).

Patent Glazing Scholarship (presented by the Patent Glazing Conference, value £50): R. A. Matthew (of East Lothian, Scotland) (Michael Hall, Sussex).

The Natural Asphalte Council Scholarship (presented by Natural Asphalte Mineowners' and Manufacturers' Council; value £50): P. A. Koh (King Edward Royal Grammar School).

Metal Window Senior Scholarship (presented by the British Metal Window Manufacturers' Association, Ltd.; value £50): A. G. A. Wilcox (Southern College of Art, Portsmouth).

NORTHERN ARCHITECTURAL ASSOCIATION

Annual Dinner of Tees-side Branch

THE freeing of controls in the building industry had greatly increased the opportunities for the architect, said MR. P. R. MIDDLETON, ARIBA, chairman of the Tees-side branch of the Northern Architectural Association, speaking at the branch's annual dinner at Stockton. With the freeing of controls for the first time in 14 years, the position of architects, both on a national as well as a local basis, had become increasingly important.

"We have a vast programme ahead, and a wonderful opportunity to leave our mark on the twentieth century," he said. The secret of success in the profession was integrity, and the client was always the person who really mattered. The architect had to produce what the client wanted at the right price and the right time. Mr. Middleton appealed for Press publicity in the profession. Newspapers could do a great deal to stimulate interest in architecture. They, as architects, must see to it that they gave the Press something to write about.

Proposing a toast to the visitors, MR. E. A. TORNBOHM, ARIBA, Darlington Borough Architect and vice-chairman of the branch, said that school building had meant to many architects "tremendous relief" from austerity. It was something that they could get their teeth into, and gave scope for talent. The way in which architects to-day could make their mark, he said, was always to give service and value for money. As architects they needed publicity and above all criticism. They were reared on criticism, and welcomed it even if it was harsh. Only by having an "educated Press" in architecture, could they have an educated public.

MR. ROBERT MACKELLAR, secretary of the Northern Architectural Association, who spoke in the absence of the president, Professor W. B. Edwards, said that the Tees-side branch was a most active and virile section of the association.

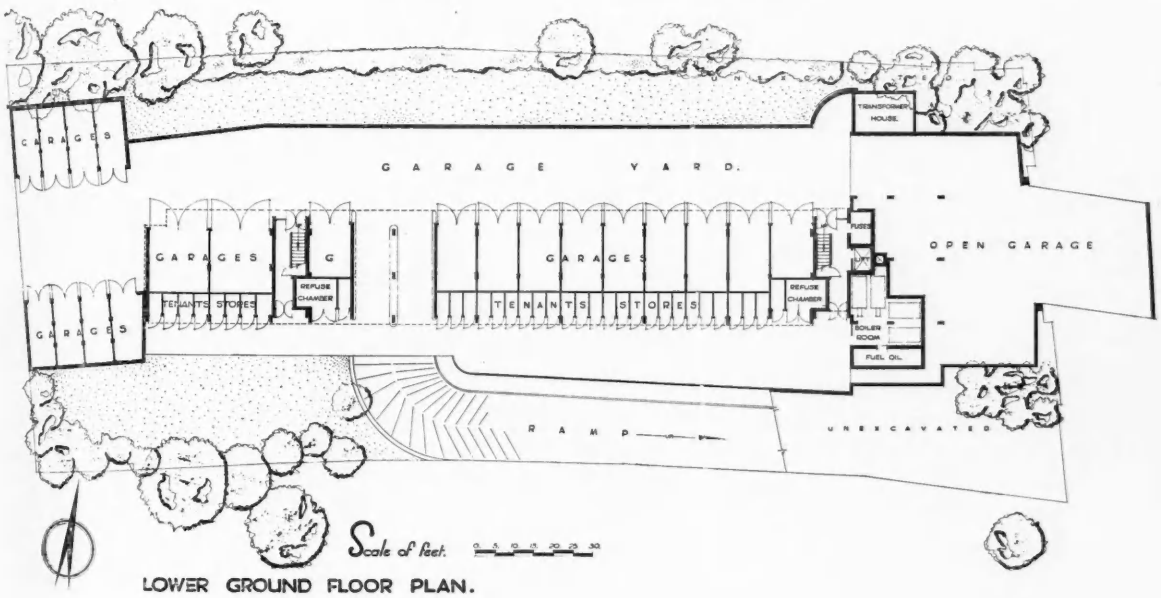
View of south elevation of long block.

FLATS AT ROCKLEY COURT, SHEPHERD'S BUSH, LONDON

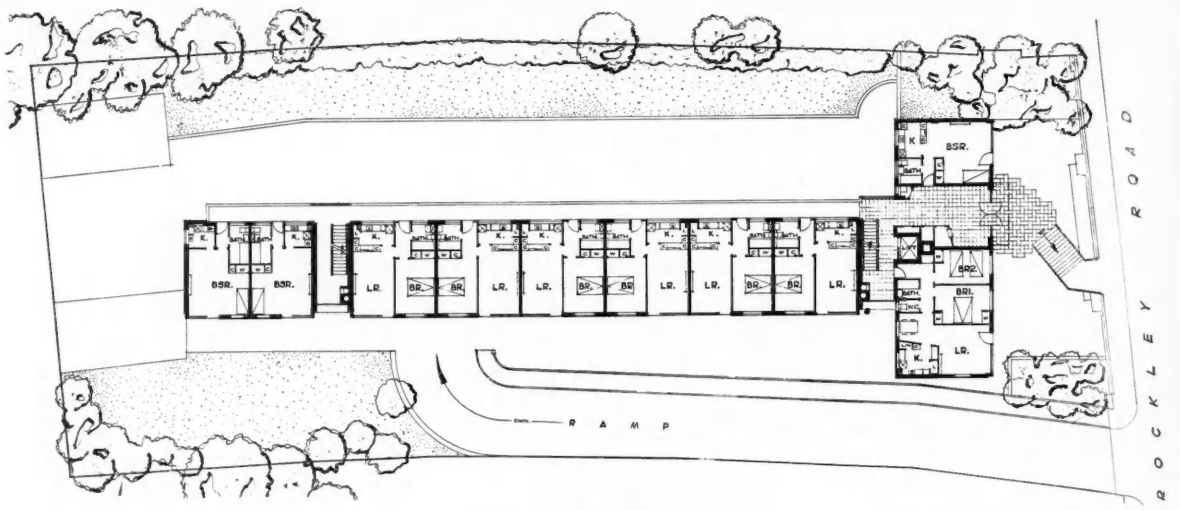
Architects: COLLCUTT & HAMP, F/AA.RIBA

Structural Engineers: WHEATLEY BRYAN & PARTNERS in association with Z. PICK, AMICE, AMIStructE, MSocCE (FRANCE)

Builders: GEE, WALKER & SLATER, LTD.



LOWER GROUND FLOOR PLAN.



Ground-floor plan.

ROCKLEY COURT, which contains 11 bed-sittingroom flats, 30 one-bedroom flats, nine two-bedroom flats, garaging for 30 cars and 34 tenants' stores, was erected for a Property Investment Company.

The site is a disused railway cutting originally carrying two tracks, the width of the cutting at track level being 45 ft. and the maximum 105 ft., the lowest level being 15 ft. below Rockley-road which provides the only street frontage, and which for most of its length is carried on a bridge over the disused tracks.

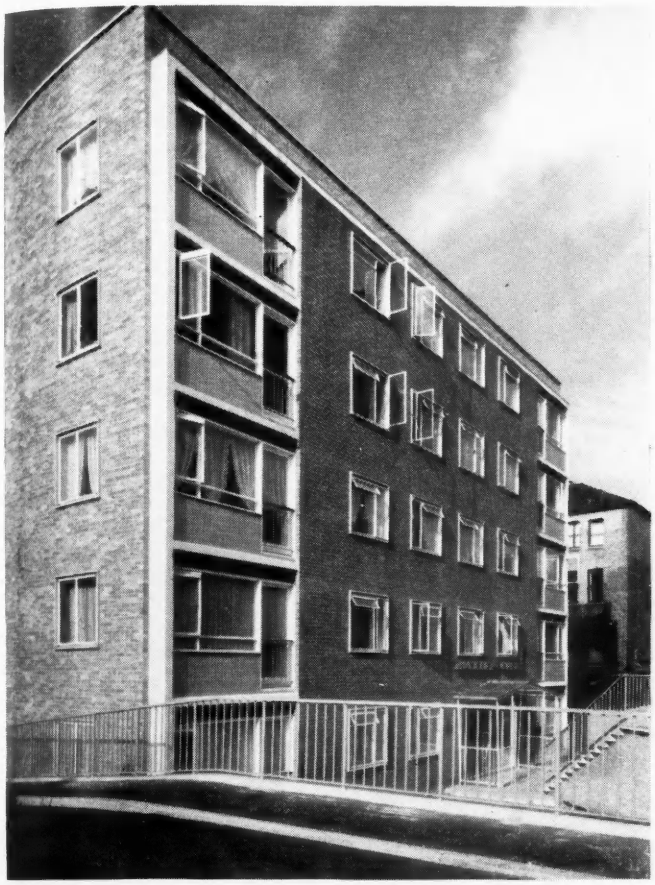
The difficulties of the site were overcome by planning a long narrow block facing south, with a short end block parallel to the road facing south and east, and by using the lower level of the cutting for garages, boiler house, fuel store, tenants' stores, transformer and switch gear, and the roadway giving access to the garages and refuse chambers. The long narrow shape of the main block determined the choice of access balcony approach to the flats.

The ground floor, though above the natural ground level, is some 6 ft. below the crown of the bridge, and the entrance hall is approached by steps from the bridge down to a forecourt.

The entrance hall gives directly on to the staircase and lift hall, which serves for access to the short block, and the access

Detail of window treatment on south elevation.

View of north elevation.



View of front elevation from the east.

balcony serving the long block. A secondary staircase is placed near the far end of the long block; both staircases and the lift give access to all levels.

The flats are provided with delivery hatches and meters accessible from outside for the convenience of tenants out during the day. All kitchens are entered from the living-room and linked visually by glass sliding hatches. Provision is made for gas or electric refrigeration and all surfaces likely to be splashed are tiled.

The exterior of the building is finished in plum-coloured bricks on the main faces with light yellow-brown bricks for returns. The soil water level is an average depth of 2 ft. 6 in. below the level of the bottom of the cutting. The isolated foundations were designed to avoid excavation below the water level and are as a consequence very shallow. The reinforced concrete framework was cast *in situ* with the exception of the beams which were precast on site and hoisted into position by the tower crane. All concrete was placed with poker vibrators. Following is a list of sub-contractors:

Windows, Crittall Manufacturing Co.; bricks, Marston Valley Brick Co. and Uxbridge Flint Brick Co. (suppliers) Turner and Sons; lifts, Keighley Lifts; electric installation, Phoenix Electric (London), Ltd.; asphalt, F. J. Prater Asphalte Co.; floors, Accotile by National Flooring Co.; terrazzo, Art Pavements and Decorations, Ltd.; railings access blacony, F. A. Norris and Co.; railings and entrance canopy, Light Steelwork (1925), Ltd.; stair balustrades, R. Smith, Horley, Ltd.

Paint, Jenson and Nicholson, Ltd.; prestressed concrete, Girlings Ferro Concrete; glazing, Faulkner Green and Co., Ltd.; tarmac, General Asphalte Co., Ltd.; interior glazed tiles, Harradine and Rouse and Co.; exterior glazed tiles, S.G.B. (Dudley); gas installation, North Thames Gas Board; sanitary fittings, Stitsons Sanitary Fittings, Ltd.; ironmongery, Kirby Brothers; cement paint, Sealocrete Products, Ltd., and Stic B Paint Sales, Ltd.

The general contractors were responsible for: Reinforced concrete frame, *in situ* and precast; plumbing; heating and hot water; plastering; joinery; painting and reconstructed stone.

FLATS AT ROCKLEY COURT, SHEPHERD'S BUSH

General view of the scheme from the south-east.

Detail of main entrance.

ELECTRONICS FACTORY AT RICHMOND

Architect
KENNETH ANNS, FRIBA

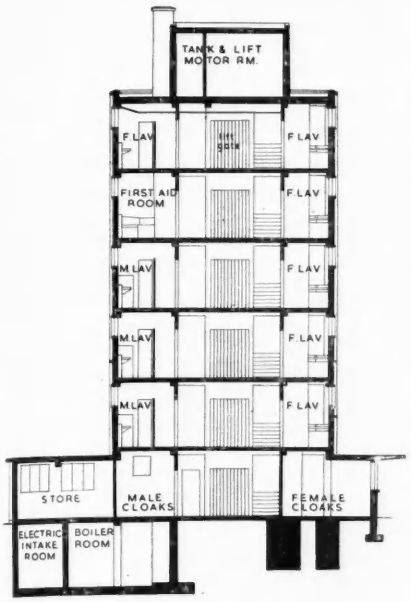
Consulting Architects to CAS (Industrial Developments), Ltd.
LLEWELLYN SMITH & WATERS, FF.RIBA

Quantity Surveyors
GLEEDS

Consulting Engineers (Structural)
ANDREWS, KENT & STONE

Consulting Engineers (Mechanical & Electrical)
J. STINTON JONES & PARTNERS, LTD.

Builders
CAS (CONTRACTORS), LTD.



SECTION A-A

The heating installation consists of one cast iron sectional boiler, oil fired, with a pump supply with two-pipe up-feed mains and cast iron radiators on reverse return sub-circuits. The hot water supply is from one cast iron sectional boiler, oil fired, feeding two indirect cylinders with gravity secondary circulation of two pipe up-feed.

The electrical installations include normal electric lighting, flood-lighting, telephone installations, loud speaker system and "Minerva" smoke detector system for prevention of fire.

Full canteen and kitchen services are planned on the ground floor. Following is a list of sub-contractors:

RC work, Helical Bar and Engineering Co., Ltd.; steelwork, T. C. Jones and Co., Ltd.; cladding, Wates, Ltd.; windows and metal door frames, Williams and Williams, Ltd.; electrical work, Bective Electrical Co., Ltd.; heating and hot water, J. H. Nicholson and Co., Ltd.; ironmongery and metal work, Comyn Ching and Co. (London), Ltd.; fireproof doors, Dreadnought Fireproof Doors (1930), Ltd.

Wood block floors, Hollis Bros., Ltd. and Vigers Bros., Ltd.; jointless floors, Semtex, Ltd.; Sundeala boarding, Sundeala Board Co.; reconstructed stonework, Empire Stone Co., Ltd.; fire-fighting equipment, Merryweather and Son, Ltd.; asphalt work, Unity Asphalt Co. (London), Ltd.; plumbing work, Dent and Hellyer Sanitation, Ltd.; lifts, Waygood Otis, Ltd.

Plastering work, E. E. Cheeseman and Sons; painting, International Paints, Ltd.; sanitary work, John Bolding and Sons, Ltd.; kitchen and canteen fittings, Intel, Ltd.; gas installation, North Thames Gas Board; joinery, James Joinery, Ltd. and R. Cattle, Ltd.; venetian blinds, Horsley Smith and Co. (London), Ltd.; electric light fittings, Falk Stadelmann and Co., Ltd.; faience, Leeds Fireclay Co., Ltd.

ELECTRONICS FACTORY AT RICHMOND

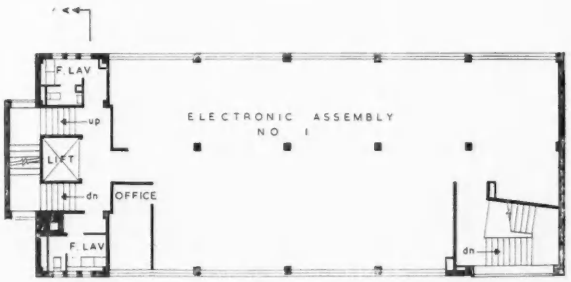
BUILT for Electronic Instruments, Ltd., this new laboratory-type factory, situated in Lower Mortlake-road, Richmond, has six storeys and cost approximately £56,000. The dual problem of a restricted site in a semi-residential area has been successfully solved and the result is a bright and distinctive building.

The total floor area of the building is about 16,000 sq. ft. It consists of a multi-storey laboratory-type factory block on six floors, 75 ft. long, 30 ft. broad and 60 ft. high, with a two-storey office block 25 ft. long, 20 ft. broad and 20 ft. high. The total site area is 8,750 sq. ft. and the ratio of site to building 2 : 1.

Work on site was started in August, 1954, and completed on March 31, 1955. This is a building time of 35 weeks as compared with the target set of 40 weeks. At peak periods up to 100 men were employed on site at one time.

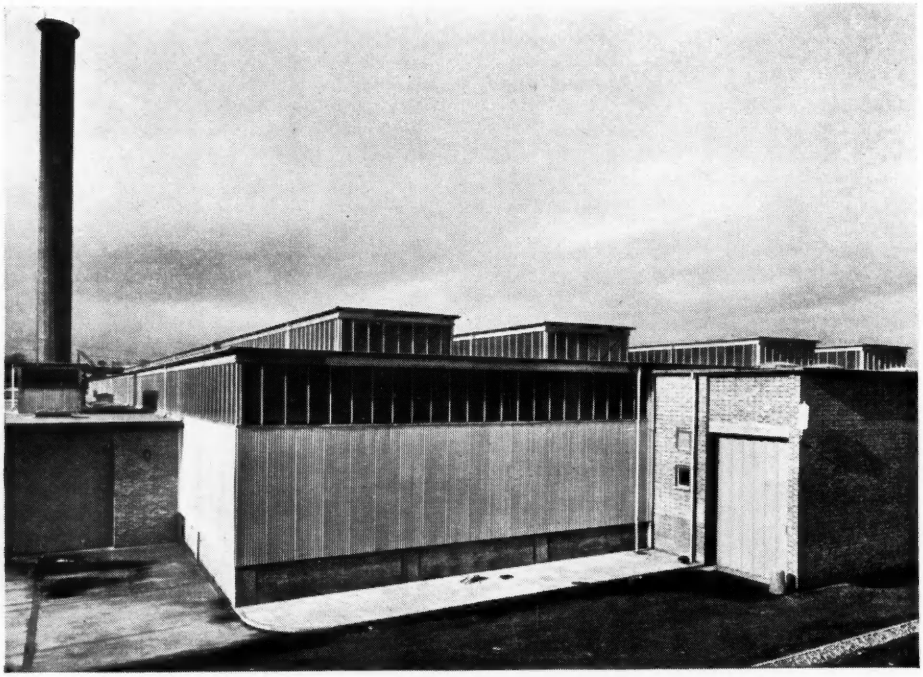
Construction.—The main building is steel-framed with ground and five upper floors providing a maximum possible open working space. The external walls are formed of an outer cladding of precast concrete slabs with exposed aggregate of Derbyshire spar and Criggion granite and faience slabs. Behind the cladding, the inner skin is formed of breeze blocks with the intervening space filled with "no-fines" semi-cellular concrete. Internal partitions are formed of breeze partitioning.

Steel-framed windows have been incorporated giving a maximum of daylight penetration. Floors in the office block are wood block and in the main factory *in situ* Semtex with a designed loading of 100 lb. per sq. ft.



FIFTH FLOOR PLAN

GROUND FLOOR PLAN



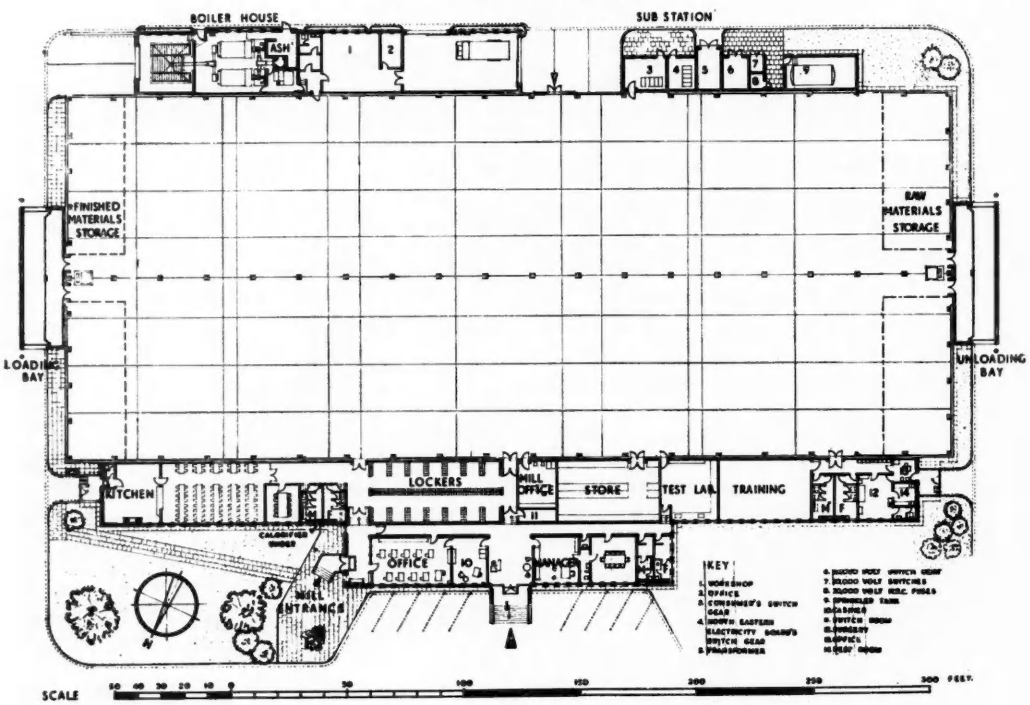
View from the south-east. Below: Plan of the building.

FACTORY AT PETERLEE NEW TOWN

for Jeremiah Ambler & Son, Ltd.

SIR WILLIAM HOLFORD, MA, FRIBA, & W. M. SHENNAN, ARCHITECTS

BOVIS, LTD., BUILDERS



THIS new factory has been built for the North Eastern Trading Estates, Ltd., at Peterlee, near Easington, County Durham. The tenants are the Bradford worsted spinners, Jeremiah Ambler, Ltd.

The factory is a single-storey steel structure, 380 ft. long by 150 ft. wide with an internal height of 17 ft. The walls are aluminium clad with patent glazing above. The office block in front of the factory building is 350 ft. long by 25 ft. deep with a front annexe 140 ft. long by 25 ft. deep. It is of plain brick construction with aluminium windows.

To allow for mining subsidence the brick-built units are designed on separate foundations and movement joints allowing vertical and horizontal movement between the two types of building are incorporated. Similar movement joints are provided between the office block and the ancillary accommodation. Vertical expansion joints in the brick buildings are also provided for units in excess of 75 ft. long. The engineering services have also been designed under the same principles and movement between the brick load-bearing structures and the steel frame factory has been arranged.

The surface of the factory floor is hardened granolithic laid *in situ* with the sub-floor. Floors in the administration section and the medical suite, canteen and staff dining-room floors are covered with Accotile. The kitchen area and the test laboratory floors are laid in quarry tiles. The remaining floors are all laid in granolithic.

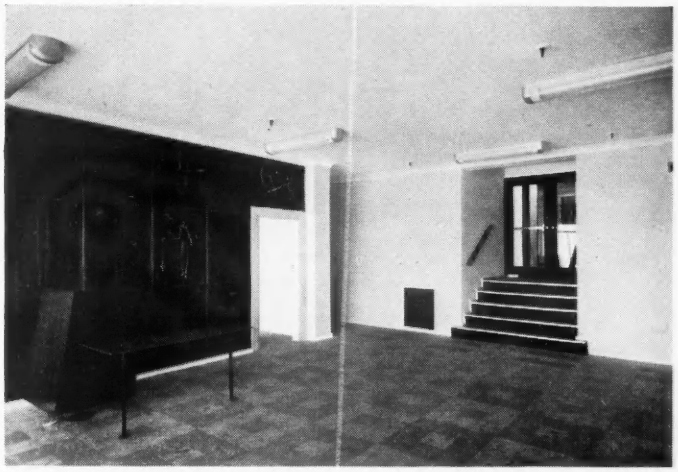
The heat source of the factory and other buildings is provided by two boilers ; steam is supplied to the heating batteries of the air-conditioning units for warming the air into the factory. Following is a list of sub-contractors:

Redpath Brown and Co., Ltd., structural steelwork; William Briggs and Sons, Ltd., bitumetal roofing; W. H. Heywood and Co., Ltd., patent glazing; Mellowes and Co., Ltd., aluminium windows; Tentest Fibre Board Co., Ltd., aluminium cladding; W. F. Holloway and Bros., Ltd., "Stramit" cladding; Bolton Gate Co., Ltd., shutter doors; Williams and Watson, Ltd., roof lights; Milners Safe Co., Ltd., rolling shutters; Mellor Bromley and Co., Ltd., air conditioning plant; Cairns (Newcastle), Ltd., heating, gas, hot and cold water supply installations; Mather and Platt, Ltd., sprinkler installation; Neuchatel Asphalte Co., Ltd., asphalt.

Herbert Morris, Ltd., electric cranes; Tileman and Co., Ltd., reinforced concrete chimney; Troughton and Young, Ltd., electrical installation; Expanded Metal Co., Ltd., false ceiling; Newcastle Glazing Co., Ltd., sheet glazing; Stuart's Granolithic Co., Ltd., granolithic; W. E. Pickering, Ltd., plastering; Newalls Insulation Co., Ltd., limpet asbestos insulation; Conways, Ltd., terrazzo partitions; Summers and Co., wall and floor tiling; Rowan and Boden, Ltd., Accotile floors ; Alston Limestone Co., Ltd., tarmacadam roads; Peerless Fencing Products, Ltd., fencing.

FACTORY AT PETERLEE

Entrance to office block.



The entrance hall.

The factory interior.

Conditions of Building in City Centres

SIR WILLIAM HOLFORD'S PAPER AT THE RIBA

A PAPER on "Conditions of Building in City Centres" was read by PROFESSOR SIR WILLIAM HOLFORD, FRIBA, MTPI, at a meeting of the Royal Institute of British Architects, held at 66, Portland-place, W1, on May 17. Mr. S. Rowland Pierce, vice-president, RIBA, was in the chair. We take the following extracts from Sir William Holford's remarks:

An old saying, that has since become a history book tag, laid it down that "Well Building hath three Conditions. . . ." And this evening my object is to inquire to what extent this statement still holds good. I am going to apply it to a particular sort of building—that which occurs in the core or centre of a town, and which, being so often a second or a third building on the same piece of ground, is not a simple but a complex architectural process. I hope to show that notwithstanding the fact that certain fundamental principles of civic design are as valid now as they were 2,000 years ago, the conditions of building in city centres are vastly different. Some of them, in fact, can hardly be brought at all under Sir Henry Wotton's famous umbrella.

There is a good deal of very vocal discontent with the present results of post-war reconstruction. I doubt if it is of the type that is called divine; but it exists. And the fact that it has been to some extent fomented is beside the point. Just because there are a large number of people—including large commercial concerns and government departments—who do not care a scrap about the design of the buildings they erect or occupy, it is all the more important that others should care enough to make a fuss about it.

Architecture, moreover, is the product of a civilisation. But it is an exaggeration to say that civilisation is a product of architecture, that we have only to conceive an environment in the pure essence of taste, to have it immediately peopled by financiers and factory hands, clergy and clerks, to say nothing of the town planners and common council men that have been anathematised by the President of the Royal Academy.

It is, I know, a banal thing to say—yet it is still terribly true—that any improvement that is not just a veneer on the surface of our civilisation must come from its stock and go down to its roots. Taste has to be achieved; it cannot be supplied in response to an advertisement. And the sources of improvement in building matters must surely be the patrons and the agents of building; which are ourselves, in our various guises and disguises—sometimes an elected body, sometimes a voluntary association, sometimes individual householders and sometimes the Press.

The arts are peculiar in that they do not always wait for the pistol before starting down the course. If building cannot begin on a well-considered programme, it must begin on a sketchy one, or on none at all. It is a commodity the country must have, even when it cannot thoroughly afford it. This is why I think it might be useful to discuss the conditions, technical and administrative, that govern "well-building" in the central areas of our cities.

Circulation

The first condition of building in the already built-up centres of our towns consists in coming to terms with traffic. There has always been congestion of a sort in city centres: one reads of it in third-century Rome. in twelfth-century Paris, in the London of *Pepy's Diary*. What is new in traffic circulation is not only the internal combustion engine and the increase in numbers, but the lack of relation between this accelerated movement and the environment through which it passes. It is as if the throng of the audience chamber had given way to the aimless criss-cross of the cocktail party.

The effect of this on the individual building or building group is well known to architects; yet we do not seem to have accepted the logic of the situation nor pressed for a cure. The fact is that no central building is self-contained. Even if it is not a traffic generator in itself, it has to find its place in the street pattern of the town; and at present that street pattern is either obsolete or inappropriate, or both. Millions of pounds have been spent on new accommodation in the central areas since the war. But the amount spent on the improvement of circulation in the same areas is negligible.

THE HYDE PARK SCHEME

Even where the pre-war system of roads and railways, parking spaces, and piped and cabled services has to suffice for reasons of economy all sorts of inappropriate uses and additional functions are loaded on to them. Because the direct route through the centre of Cambridge is narrow and slow, and because Queens Road—which passes through "the Backs"—is an existing by-pass from Huntingdon-road to the station, it is seriously suggested, even now, that it should become the trunk road for through traffic. Much the same argument applies to the East Carriage-drive in Hyde Park, between Marble Arch and Hyde Park Corner. To relieve congestion at these two points and in Park-lane, it is now proposed to sacrifice it on the altar of convenience. It is only a partial and temporary means of alleviation; for it is obvious that what is needed is a more radical solution to the problem of traffic congestion *as it will be ten years ahead*, and not as it was before the war. But cost deters us; and so the responsible authorities have to do the best they can with inadequate means. One cannot help asking, none the less, what the position will be when this tedious, difficult and by no means economical operation is over, and we have lost one more of those features which make London's Royal Parks almost unique in the urban centres of Europe.

After discussing the problems of providing parking space for vehicles in or near buildings, the speaker continued: I would like to mention one scheme out of several where a comprehensive approach to architecture and traffic is being attempted and where the primary designs are being—so to speak—welded into a grand design. This is the Park Hill Redevelopment Scheme, near the City Centre of Sheffield [described in *The Builder* of April 22]. Here Mr. Womersley, the City Architect, has planned a pedestrian precinct, rear access roads, parking, garaging, and slow movement by a complete system of street decks. Housing, shopping and traffic circulation are all part of a unified design.

Design and Lettable Area

The next condition of building in a city centre, on which I would like to comment, is the economic condition and its effect on the external appearance of the building.

It is quite common in practice to have to meet the requirements of more than one client. But somewhere there is the executive client—if one may so call him; with his surveyor and his accountant. This is the man who specifies the "commoditie," leaving it to his technical advisers to see to the "firmness" and to create the "delight." The perfect marriage of patron and architect should produce the best possible conditions for design. But who is the patron? The building owner, who may be building his firm's head office, or for part-occupation, or wholly to let, is concerned first and foremost to make his enterprise pay. The adviser who is really planning his building is his estate manager or his accountant.

All three are likely to leave matters of appearance, amenity and civic design to the public authorities; and they will expect their architect to see the scheme through the Royal Fine Art Commission, the Preservation Societies, and the local town planning committee—all of whom they regard from their own point of view as hazards. Elaboration of the machinery for passing plans simply increases the hazards; and this widens the gap between private and public interests. A speculative architect like John Wood at Bath, or John Nash in London, put his designs quite literally on the market; he knew that his patrons would judge him by them. But it is often the case to-day that even public-spirited owners disregard the factor of design, because it does not seem to them to be their business. If you doubt this, look about you.

The position of the architect in this situation is one of great difficulty. If his reputation is as great as his personality he may ignore the economic condition of building and concentrate on design. If he is a greater man still, he will bring his client round to his own way of thinking. History can afford us examples of patrons who have counted a fortune well lost in the achievement of a real work of architecture. But those examples are growing less frequent; and the more likely result of such an attitude nowadays is an uncertain building (not neces-

Drawn by Lawrence Wright. *From the RA Exhibition.*

LEICESTER TEMPERANCE BUILDING SOCIETY: NEW OFFICES, LEICESTER. Pick, Everard, Keay and Gimson, Architects. Sir Howard Robertson, ARA, Consulting Architect.

guilty in the line of duty, but proved to be a well-composed vista of "live" architecture in its humanistic and sociological context, the vanishing-point, as it were, being the Industrial Revolution.

The composition's foreground was a vertical feature of the kind for which the speaker is now famous. Reminding us that the essential problems, for which circumstances had rendered the Garden City concept obsolete as a solution, still remained, he said that the future lay not in further dumping-grounds for "decanted overspills" (that officialese aptly suggesting a fluid element inconveniently hard to handle) but in "three-dimensional zoning" in urban complexes to which populations were irresistibly attracted. This meant not merely more and taller flats, but what he called "hill towns" where all types of dwellings together with their essential adjuncts provided the means for a full, airy and contained life.

RICS ANNUAL MEETING

THE annual general meeting of the Royal Institution of Chartered Surveyors to receive the council's report for the session 1954-1955, and the results of the ballot for the election of the council for the ensuing session, will be held at 12, Great George-street, SW1, on June 6.

LONDON'S FLOODLIGHTING

THE MINISTRY OF WORKS announces that the floodlighting of public buildings in London, which started on May 1, will continue until the end of summer-time on October 2. During the same period the fountains in Trafalgar-square will play daily from 10 a.m. until midnight.

Floodlighting will be from lighting-up time until midnight. The following buildings are included in the scheme:—Nelson's Column and Trafalgar-square, National Gallery, Admiralty Arch, Admiralty Old Building, Carlton House Terrace, the Horse Guards, the Houses of Parliament (Terrace only, and only during the Parliamentary recess), the Tate Gallery, Somerset House, and the Tower of London.

Big Ben, which was floodlit last year, is not included in this year's list because it is under repair.

Floodlighting of public buildings has now become a regular feature of London life and the MOW are to be commended for continuing it this summer.

THE LMBA LUNCHEON

IN RECENT years the LMBA's luncheon in honour of the Lord Mayor has been the opportunity for many grievances to be aired concerning the slow—and at one time almost non-existent—progress made in the rebuilding of the City of London after the war-time devastation. At Tuesday's luncheon, however when this pleasant annual event was once more celebrated, there were no complaints on this score, and the President, Mr. L. J. Holloway, was able to report that a rebuilding programme in the City of £100 m. (mostly undertaken by LMBA members) was under way.

The Lord Mayor, Alderman Sir Seymour Howard, whose remarks are reported on another page, also contributed some interesting figures about the scale of rebuilding. He went on to express the view, emphasising that this was his personal opinion, that in the rebuilding of the City provision should be made for a certain amount of residential accommodation. In contrast to Sir David Eccles's outspoken remarks on the need for buildings worthy of the great traditions of the City, made at an earlier lunch while he was Minister of Works, neither speaker ventured to make any direct reference to the vexed questions of planning and aesthetics in the rebuilding of the City.

COMPETITIONS OPEN

MONUMENT IN PORTUGAL.—Eliminatory test for international competition for monument to Prince Henry the Navigator at Sagres promontory, Portugal, together with scheme for provision of lighthouse and museum. (At least one architect, one civil engineer and one sculptor to be included in each competing group.) Total cost of work to be not more than 35m. escudos (£1 = 125). First Prize: 90,000 escudos. Promoted by Government of Portugal. Conditions from the Portuguese Embassy, 103, Stone-street, SW1. Closing date: May 31, 1955. *March 11, 1955.*

*, ** *The date in italics refers to the issue of* The Builder *in which fuller details were published.*

COMPETITION NEWS

Development Plan of Ankara

THE decision of the jury in the international competition for the development plan of Ankara has been announced as follows:—

1st, Rasit Uybadin and Nihat Yücel (Turkey): 2, Wolfgang Rudhard, Götz-Dieter Raths and Peter Ahrens (Germany); 3, William Vetter, J. P. Vouga, Hans Marti and Hans Kast.

Mentions.—(1) Radi Birol, Turgut Cansever, Aydin Germen, Abdurrahman Hanci and Maruf Unal. (2) Rauf Beyru, Turgut Tuncay, Ilhan Artuner. (3) Peter von Bohr. (4) Melahat Topaloglu, Bülent Berksan, and Mehmet Ali Topaloglu. (5) Kemal Ahmet Aru, Gündüz Ozdes, Hande Caglar, Ahmet Keskin, Yilmaz Gürer, and Behruz Cinili.

In the following cases the jury decided to buy the plans submitted by the competitors:—(1) John Ratcliff (United Kingdom). (2) J. Deryng. (3) Rudolf Nitch.

The jury was an international panel of 15 under the presidency of Sir Patrick Abercrombie.

Building Exhibition Stand at Olympia

THE DESIGN of a stand at the forthcoming Building Exhibition at Olympia is the subject of a competition which has been organised by Ascot Gas Water Heaters, Ltd. It is open to architects and students who have reached the RIBA Intermediate stage or its equivalent.

The awards will be as follows:—1st, 200 guineas; 2nd, 100 guineas; 3rd, 50 guineas. The promoters, while guaranteeing these awards, do not bind themselves to build a winning award. The appointed assessors are Mr. C. S. Mardall, FRIBA, and Mr. F. R. Yerbury, OBE, HonARIBA.

The stand is to cost not more than £1,800 to build, including plumbing and lighting installations. The author or authors of the winning design will be responsible for the supervision of the erection of the stand if required and will then be paid a fee of 100 guineas for the completion of drawings and work of supervision. They will be assisted in connection with the technical problems which arise in the installation of water heaters, plumbing, etc. Entry forms and details from Ascot Gas Water Heaters, Ltd., 255, North Circular Road, NW10. Closing date for entries is July 8.

LONDON DESIGN CENTRE

BRITAIN is to have a permanent exhibition in London, where well-designed products from British industries will be displayed as a stimulus to her home and export trade. The Council of Industrial Design has announced that the premises of the Design Centre for British Industries will be at 28, Haymarket, SW1, and that arrangements are being made to open the Centre early in 1956. "Design Review," the Council's illustrated index, will be the basis for the selection of exhibits, and the Council's offices and conference room will be in the same building.

CORRESPONDENCE

RIBA AND "OTHER PROFESSIONAL BODIES"

To the Editor of *The Builder*

SIR,—I enclose for your information copy of a letter addressed by my President to the RIBA asking for clarification of their circular letter of April 25, published in your issue of May 6.

I trust you will find it possible to give as much publicity to this as was given to Mr. Spragg's letter.

A. E. WARD, Secretary, The Institute of Registered Architects.

47, Victoria-street, SW1.

COPY

The Secretary, Royal Institute of British Architects, 66, Portland-place, W1.

Dear Sir,—As a member of the RIBA I duly received your letter of April 25. I must confess I am at a complete loss to understand whether the severe strictures and inferences contained in your letter are intended to apply to the second largest architectural body to the RIBA, namely, the Institute of Registered Architects of which I have the honour to be President.

Since your letter has appeared in the technical Press I am asking for a similar courtesy for the sake of clarification and I should feel obliged by an early reply from you since this matter cannot possibly remain as at present.

Yours very truly,
EDWARD PROCTER, President.

DIRECT LABOUR: FACTORS NECESSARY FOR SUCCESSFUL WORKING

To the Editor of *The Builder*

SIR,—The part that Direct Labour organisations have to play in the building industry to-day is a subject which arouses fierce controversy, a controversy from which no satisfactory economic conclusion seems to be emerging.

Many local authorities are turning in desperation to direct labour in an attempt to cut building costs, believing that in the profit margin lies the solution to their problem. Unfortunately few of our "parish pump" politicians are aware how fine is that profit margin, and how quickly it can be frittered away in mismanagement, thereby destroying the very saving which it sought to achieve.

Large-scale building demands high qualities from its managerial staff, and most local authorities are either unable or unwilling to pay the high salaries which would be needed to attract such men from the ranks of the large building firms, where their worth is more usually appreciated.

Management must therefore often fall into the hands of the dubiously-trained building works manager, or those of the architect or engineer already on the spot who, in their guise of "Pooh-Bah," find themselves poorly equipped to tackle problems for which they have neither training nor inclination.

Increasingly the larger building firms are harping on pre-planning as a means of cutting building costs, a concept of planning which our architects seem lamentably unable to stomach but one which direct labour gives unique opportunities to exploit to the full.

It has been pointed out in the RIBA Symposium on High Flats that modern techniques can bring down the cost of multi-storey flat building to a level comparable with housing—a statement to which the cynics have been heard to reply: "Who gets the benefit—the contractor?" That reply is at the present time undoubtedly justified, since a very few efficient contractors tender in competition with a vast majority of comparatively inefficient muddlers. A perusal of published tender figures will often show a difference between highest and lowest tenders of only a few thousand pounds on a million pound contract; the more technically advanced contractor who gets the tender in competition with his more sluggardly competitors, reckoning on their usual 4-5 per cent. profit, should be able to show an overall profit in the region of 9-10 per cent. under present-day conditions where his modern techniques are used.

It is at this end of the scale that direct labour could really show its worth; given a guaranteed programme of work, complete pre-planning, adequate mechanisation, good management and, above all, enthusiasm on the part of the staff, it should be able to build up to 10 per cent. more cheaply than the local competitor.

It is essential, however, that the building programme of the organisation should be sufficient to give adequate writing-off of the heavy capitalisation costs involved. Whereas in the case of thirty or forty direct labour departments in this country the turnover is in the region of £500,000 to £1m. per annum, it would appear foolhardy and grossly uneconomic to do other than realise the savings which could result from such capitalisation.

Modern equipment alone cannot put direct labour on its feet; it must also have technical staff alive to the possibilities, and limitations, of the means by which it proposes to build. Close co-operation between site agents, architects, quantity surveyors and engineers—working at least a year in advance of the sites for which they are planning—must be the objective to be attained if full advantage is to be obtained of the direct labour system. The costs which are involved in payments to technical staff under this system should also be much cheaper than normal, since at 5 per cent. on a £1m. turnover ample money should be available to attract and keep first-rate technical staff of the calibre that is required.

So long, however, as direct labour departments are tied to the apron strings of local government, with its rigid salary scales, impersonal employment, opportunities only for snail-like advancement, buck-passing mentality, changing political colour, and ultimate authority resting in a remote committee which are as likely to make a catastrophic decision as a right one, according to the policy belly-rumblings in the party caucus to which they owe allegiance, then for so long direct labour never really will succeed.

B. C. MEOPHAM.

40, Hollywood-way,
Woodford Green, Essex.

WATER CHARGES

To the Editor of *The Builder*

SIR,—I was extremely interested in your article relating to Water Charges for Building Supplies in your issue dated April 22. Whilst it is essential to consider the builders' point of view and their endeavours to reduce costs, one must also examine the problem from the statutory water suppliers' angle.

In your article you have examined the position for the construction of a single house and linked your findings with the construction of an estate. To my mind, two separate problems arise, and it is not safe to assume that what applies to a single house will automatically apply to a large estate. The first conception one has to consider is that water is a Public Health necessity, and that every endeavour must be made to encourage its use in the domestic field. In order to do this, costs must be kept to a minimum and related to ability to pay rather than quantity used. Therefore, the water undertakings cannot assume that they will get an economic return from each new consumer. The same considerations do not apply to the other services of gas and electricity, and to illustrate this point I would draw attention to the statutory requirement that all new houses must have a piped water supply before they can be occupied. This condition does not apply to the other services.

To return to your article you claim that the cost of water used to construct a £2,000 bungalow at meter rates amounted to 10s. 3d. plus 15s. for fixing and hire of meter. What you failed to add was the builder's cost of construction and demolition of a meter pit to protect the meter against frost, and I venture to suggest that these costs would exceed the £7 charged on percentage rates.

With regard to the building of estates, in most cases new mains have to be laid, and under Section 37 of the Water Act, 1945, a guarantee is required from the builder. This guarantee provides that one-eighth of the cost of the new mains, less any income received from connections to that main, shall be paid for a period of 12 years. Payments in respect of the building supply charges are immediately offset against this guarantee, and for the ensuing years the domestic water rate is usually sufficient to meet the guarantee payment. This means that the builder gets his water main laid free, whereas in the case of electricity services he may be required to make a capital contribution towards the cost of providing the service, if the expected revenue does not reach a percentage of the capital outlay.

One further point I would make, and that is the tendency of workmen to obtain supplies from the nearest source. Therefore once a house is connected to the supply, water may be drawn from the domestic tap rather than from the meter supply.

In conclusion, may I add that the Cuckfield Rural District Council have found it necessary to increase their charges for domestic water rate and metered supplies from April 1, 1955, in order to meet rising costs.

W. L. TRIMM, Treasurer,
North-West Sussex Joint Water Board.

32-40, North-street, Horsham.

"The Architecture of Reconciliation"

A BASIS OF DESIGN

By HOPE BAGENAL

THIS expression—the architecture of reconciliation—which I recently used at the RIBA in connection with the work of John Murray Easton—has caused some questioning, and the Editor of *The Builder* invites me to expand my meaning. I can best do so in a series of notes.

If and when an architect has kept his head through the schools, learned some building construction, observed what has happened to buildings out of doors, plunged into the modern maelstrom and insisted on finding work and *building* instead of writing about building, he then begins to find a number of disconcerting facts. He begins to learn the "conundrum of the modern technical and scientific problem." He is besieged by salesman's information on materials and techniques, some useful, some imbecile and facetious, some very misleading indeed. What use are they for specification? What do they tell of performance? He must select and reject—continuously exercising a personal choice. Turning for help to British Standards Specifications he learns that here again some are most useful, but many impossible to follow and tacitly ignored. He has, on his own authority, to make his choices. He and he only must stand responsible for what he writes down in his specification. So he begins to exercise courage and to take the responsibility of personal decisions on points which will mean trains of cause and effect reaching into the future. He begins to collect his own reliable materials, make his own simple commonsense tests and comparisons; he begins to organise his experience. He begins to want simple foolproof solutions of the common recurring problems.

Then perhaps there comes a failure—in a building of his own or a friend's. Neither the performance of buildings nor building failures are given much attention in the professional Press. One may look at pictures for years and not come across this aspect. But, of course, failures are carefully discussed by practitioners, and sometimes a great deal is to be learned from them. But not always. Often the cause is never discovered for the reason that nobody knew where the bricks came from, what the concrete spec. was, what was in the mortar. So, having that rare thing, an instinct for the practical, he determines to investigate himself—go into the whole subject. Then may come the greatest surprise of all. He may well find that the whole experimental theory of that subject has changed in the last 10 years in the light of new tests and that the fundamental notions he has been working on and taking for granted are now said to be out of date.

THE LONG-TERM BUILDING

And about this time he may find himself summoned to design a library or museum or college building having an expectation of life of at least a hundred years. Having served his apprenticeship on "shack" architecture he must now turn to a wholly different scientific problem—that of the long-term building whose maintenance over the years must be considered. And he may wonder how many revolutions of scientific theory he may come to see in his lifetime, and how many of his buildings in the course of years may come to survive.

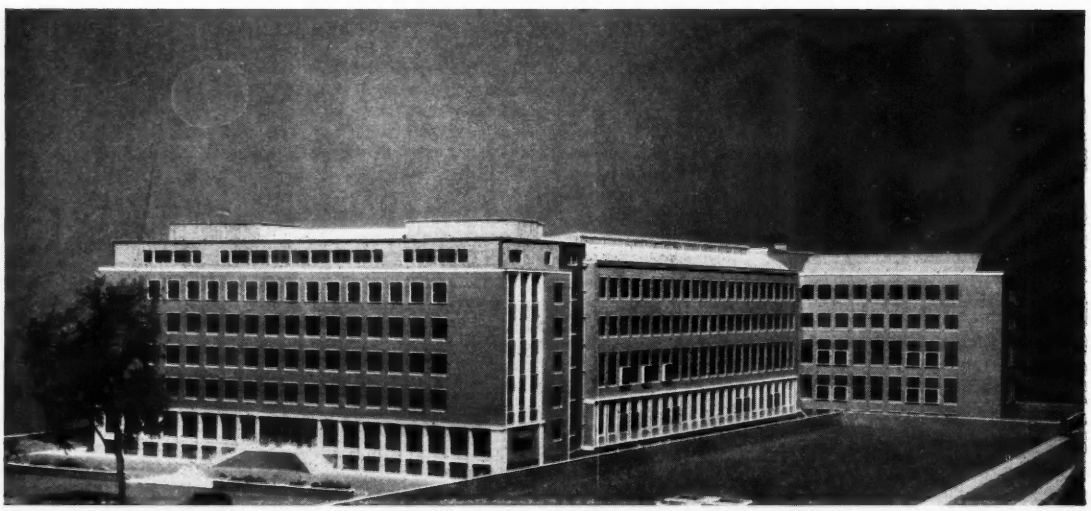
All this merely means that while modern techniques are trumpeted on all hands he is, in fact, inexorably driven back on his own hard-won experience, on his own convictions. Nearly all the new materials have serious defects. He has noted that from a purely scientific point of view clay bricks and cut stone appear to be the only materials without dangerous thermal and moisture movements. All the range of concretes and reconstructed stones move and continue to move and cause a series of unsolved problems connected with the curtain wall. But this may lead on to something else. A study of water-proofing failures may point to the fact that many of the older techniques, so far from being merely style bits, are useful long-term experiments with a *rationale* of their own, in face of the open-air conditions which do not change. The scientific terms seem to include the fact that water-proofing and sun-proofing remain a constant.

And this may lead to a new and interesting view of the two great European styles (still deliberately employed by traditionalists) the Gothic and the Classic, as each an organising of long-term climatic experiments; one in water-proofing and rainwater disposal, the other in sun-proofing and heat insulation. And here I suggest that water-proofing of a thirteenth-century Gothic building was far more *scientific* (if the term has any meaning) than anything achieved in Renaissance or modern times, and we shall be forced in time to learn some of its purely functional lessons.

Also (since today the builder is a business man primarily, and craftsmanship is almost dead) the need for recognisable parts, each with its functions, the need for simplifications and desirable foolproofings, is not less but more. Then it is that there creeps upon the mind the true meaning of tradition, and the realisation that architecture is the art of rough generalisations and approximations, not the art of close calculations and definings like engineering. But this poses the whole of the scientific problem in terms different from those of engineering.

THE SANCTIONS OF WEATHER

Another point is that our land situation, in the Gulf Stream yet exposed to polar and continental winds from north and north-east, in fact gives us a climate unique in its variability. Variability is



NEW CHEMISTRY LABORATORIES, CAMBRIDGE UNIVERSITY. *J. MURRAY EASTON, FRIBA (Easton & Robertson), Architect.*

the great enemy of building materials. Our climate is always, as I said at the RIBA, prising at joints. It is always enforcing its terrible sanctions on every new generation of innocents.

But now let us look at the other side. There are a number of modern empirical experiments and contributions of real value waiting to be embodied in long-term building. What I mean by the Architecture of Reconciliation is that we should look with the same cool, experimental eye on the traditional, and on the modern, solutions of the problems before us, willing to use any or all that give us an excellence and a coherence. But this will mean an enlarging of modernist theory to include a wider time-span and a study of climatic conditions. In his recent talks on the BBC about architecture and its problems today I could not find that Mr. Maxwell Fry discussed physical climate at all, only the "climate of thought." The climate of thought may be a hot-house climate. It is the physical climate that governs architectural theory. And today this is urgent because our Commonwealth has different climates.

And once having taken this broad experimental and open-minded view, fertilised from the continuities of the past yet absorbed in modern problems and dog fights, it may well come about that the older experiments prove themselves of more value for the outside of a building, for skins and roofs, while the newer are of great use for bones, arteries, organs of all kinds. And my interpretation of Easton's work was that while actually more interested in new developments, the lesson of his new School of Chemistry at Cambridge was that he had planned for invention and experiment but constructed for durability and maintenance.

But let us make no mistake. This attitude means the thinking out of an artistic theory, as well as all the labour of personal experiment and research. And every office today should be its own school of research and recording of performance (specifications should be carefully preserved), and its own school of artistic thought. It may also mean the rejecting of some fashionable romantic theories about science, in favour of a more realistic approach. But though we are in an age of fever and flux inimical to the genius of architecture, though the great Insolubles seem to wait around us with open mouths, I do not despair because of the presence of a certain imponderable factor. It is the consciousness of an invincible creative Impulse waiting not to be worshipped but to be discriminated and controlled.

YEAR BOOK

The current year book and classified directory of the Westminster Chamber of Commerce, Mitre House, 177, Regent-street, SW1, has recently been published. It includes a list of the departments of the Board of Trade; principal government and public offices; embassies and legations of foreign states in London; United Kingdom commercial representatives overseas; British Chambers of Commerce; and an alphabetical and classified list of members.

SCULPTURE AT THE ROYAL ACADEMY

Reviewed by MARJORIE MORRISON

THE private view over, word went round the studios, the clubs and the pubs, of the "betterness" of this year's Royal Academy—young and vital work by the young and younger work by the old. So, expecting the best instead of the worst we started on our annual peregrination determined to do our duty by the sculpture and not to look at a single picture on the way. A turn round the Central Hall and the Lecture Room quickly established the fact that the "betterness" does not extend to the sculpture. A pretty stodgy lot, we felt, with little to praise and, on the other hand, little to find fault with.

Portraiture is perhaps the Academy sculptor's strongest suit. Even at its very worst the portrait in bronze, wood or terra-cotta, perhaps owing to the intrinsic quality of the material, can never be so bad as the bad portrait in paint. Actually the large number of portraits in this exhibition are of a very high standard technically but unfortunately there is not a real thrill among them.

We single out three to talk about. There is the bronze bust of Sir Gerald Kelly, Past President of the Royal Academy, in robes and chain of office. In this skilful and sensitive portrait the penetrating eye, understanding mind and clever hand of Maurice Lambert expose the lively character of the man underlying the dignity of the president. The pose, giving emphasis to the hands, is a happy one. As a presentation or official portrait it is admirable. Now we come to something quite different. "Hugo Wortham" by Dora Gordine is a smallish head in greened bronze with the classic quality that makes us pick out Dora Gordine's work. The technique is calm and unobtrusive and the subtle character of the sitter is quietly expressed but not dramatised. How good this head must look in sympathetic surroundings and how hard the inevitable Academy clutter is on the smaller pieces. The third portrait that makes an impression is that of T. B. Huxley-Jones by Bainbridge-Copnall. There is no calmness here, the technique is violent but it suits the subject. Accidentals are stressed—the twist to the mouth, the twist to the tie, the pouches under the eyes. It is one of the most vital heads in the show.

"French Conversation Piece," a terra-cotta by Audrey Blackman.

Panel for Lloyds Bank, Portsmouth, designed by James Woodford, CBE, RA, FRBS.

Other portraits worth noting are two busts, one of Rita Ling by John Skeaping and (returning the compliment), one of John Skeaping by Rita Ling. Both are forceful realistic studies. Then, although hardly in the category of portraiture, there is "Naiad," a head by Eva Castle in white and coloured mosaic. The effect is charming and somewhat baroque and we can easily imagine "Naiad" in some damp nook in the gardens of Villa d'Este.

ARCHITECTURAL WORK

A search for good work under the heading architectural is rather unrewarding but there are two or three interesting exceptions. One of these is "St. Augustin of Hippo," a half-size model for a stone carving on St. Augustin House, EC, by John Skeaping. To those of us who are tired of formal figures, with all expression conventionalised away, the naturalness and simplicity of this figure is very refreshing. Skeaping shows St. Augustin not as the bishop in Proconsular Africa but as the tormented Christian, clutching to his heart what we take to be the "Confessions." John Skeaping shows also a striking crucifix, in burnt yew-wood, seemingly made from entangled tree branches. It has a strange primitive quality which is rather moving and it is interesting to compare it with the very conventional crucifix, also in yew-wood, for Wells Cathedral by Estcourt Clack.

Now we turn to a purely decorative panel by James Woodford for Lloyds Bank, Portsmouth. The figure of young Neptune is designed to fill a circle within a square. The composition is

Sir Gerald Kelly—a bronze bust by Maurice Lambert, RA.

admirable but in spite of nice relief modelling the effect is rather mechanical. Mr. Woodford can, of course, do this sort of thing standing on his head, and do it very well, but it is the fault of client and architect that he is seldom required to do anything that would put him on his mettle.

A "GARDEN" PIECE

There is one more piece, architectural or rather monumental in character, that arouses interest. "Musician," carved in Purbeck stone by Mary Spencer Watson, would look wonderful in a garden. The musician is a nice fat woman squatting on the ground with a stringed instrument held between her knees. Her head is thrown back with shut eyes; she is not playing but listening to sounds somewhere. The composition fits more or less into a square and looks good from all round. Architects, please note, here is a sculptor to be entrusted with something important.

Before we finish with works of important size mention must be made of "Girl in Chair," by Sydney C. Harpley, which is placed in Gallery VIII. Every single critic has picked this out as perhaps the most vital and interesting thing in the exhibition. We certainly do not disagree with the verdict. The artist is a very clever young man. Of course he has looked at a lot of Continental work; of course he admires Manzú, and why not, as long as he contributes something of his own, which he very definitely does. We omit a description, but readers, do go and see it.

There remain now only the little things in their usual home in the showcase. Audrey Blackman appears again with two statuette groups in terra-cotta, both lovely but perhaps "French Conversation-piece" wins the prize. It really is a conversation—"she" has a fowl slung over one arm, "he" is just one big shrug, and anyone can see that money comes into the argument. Marian Morris shows two earthenware statuettes, both highly stylised costume pieces of exquisite workmanship. Our reaction to the small pieces is, briefly, how beautiful, and how buyable. To end on a sad note, there is a problem that haunts us at every Academy: the problem of the sculptor who goes on exhibiting, every year, the large, competent, female life study that nobody wants. Unsuitable for either a provincial gallery or a Herts. school, a home or a garden, these pathetic women have no future except a return to existence under a sheet in many a dark corner in many a studio. This year she is called "Voodoo."

Hugo Wortham—a bronze head executed by Dora Gordine.

SITE LABOUR STUDIES

"Site Labour Studies in School Building" is the subject of Ministry of Education Building Bulletin No. 12, now published by HMSO, Price 3s. 6d.

St. Augustin of Hippo: model for stone carving for St. Augustin House, EC, by Professor J. R. Skeaping, ARA.

SOCIETIES

ARCHITECTURAL ASSOCIATION

Scholarships in Architecture, 1955

THE Council of the Architectural Association announce the award of the following scholarships tenable at the Architectural Association School of Architecture.

Leverhulme Scholarship (Value £2,000 over five years): A. W. Anderson (City of Norwich Grammar School).

Allied Ironfounders Scholarship (presented by the Allied Ironfounders, Ltd., value £75 per annum): M. S. Higgs (University College School, London).

Metal Window Scholarship (presented by the British Metal Window Manufacturers' Association, Ltd., value £75 per annum): K. F. Routledge (Carlisle Grammar School, Carlisle School of Art).

The Graham Laidler Memorial Scholarship (Presented by his Fellow Students; value £75 per annum): C. A. Pearce (University College School, London).

1933-38 *Students' Scholarship* (value £75 per annum): G. M. Hallett (Cheltenham College, Cheltenham School of Art).

The "Architect and Building News" Scholarship (value £75 per annum): J. R. Gosling (Bancroft's School, Essex).

Patent Glazing Scholarship (presented by the Patent Glazing Conference, value £50): R. A. Matthew (of East Lothian, Scotland) (Michael Hall, Sussex).

The Natural Asphalte Council Scholarship (presented by Natural Asphalte Mineowners' and Manufacturers' Council; value £50): P. A. Koh (King Edward Royal Grammar School).

Metal Window Senior Scholarship (presented by the British Metal Window Manufacturers' Association, Ltd.: value £50): A. G. A. Wilcox (Southern College of Art, Portsmouth).

NORTHERN ARCHITECTURAL ASSOCIATION

Annual Dinner of Tees-side Branch

THE freeing of controls in the building industry had greatly increased the opportunities for the architect, said MR. P. R. MIDDLETON, ARIBA, chairman of the Tees-side branch of the Northern Architectural Association, speaking at the branch's annual dinner at Stockton. With the freeing of controls for the first time in 14 years, the position of architects, both on a national as well as a local basis, had become increasingly important.

"We have a vast programme ahead, and a wonderful opportunity to leave our mark on the twentieth century," he said. The secret of success in the profession was integrity, and the client was always the person who really mattered. The architect had to produce what the client wanted at the right price and the right time. Mr. Middleton appealed for Press publicity in the profession. Newspapers could do a great deal to stimulate interest in architecture. They, as architects, must see to it that they gave the Press something to write about.

Proposing a toast to the visitors, MR. E. A. TORNBOHM, ARIBA, Darlington Borough Architect and vice-chairman of the branch, said that school building had meant to many architects "tremendous relief" from austerity. It was something that they could get their teeth into, and gave scope for talent. The way in which architects to-day could make their mark, he said, was always to give service and value for money. As architects they needed publicity and above all criticism. They were reared on criticism, and welcomed it even if it was harsh. Only by having an "educated Press" in architecture, could they have an educated public.

MR. ROBERT MACKELLAR, secretary of the Northern Architectural Association, who spoke in the absence of the president, Professor W. B. Edwards, said that the Tees-side branch was a most active and virile section of the association.

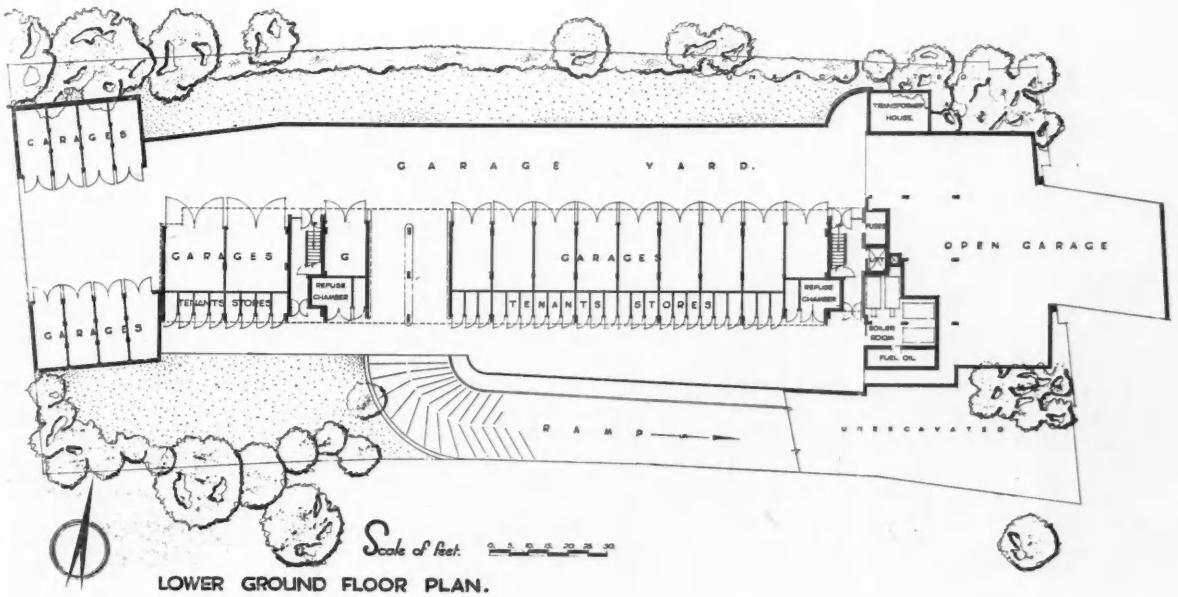
View of south elevation of long block.

FLATS AT ROCKLEY COURT, SHEPHERD'S BUSH, LONDON

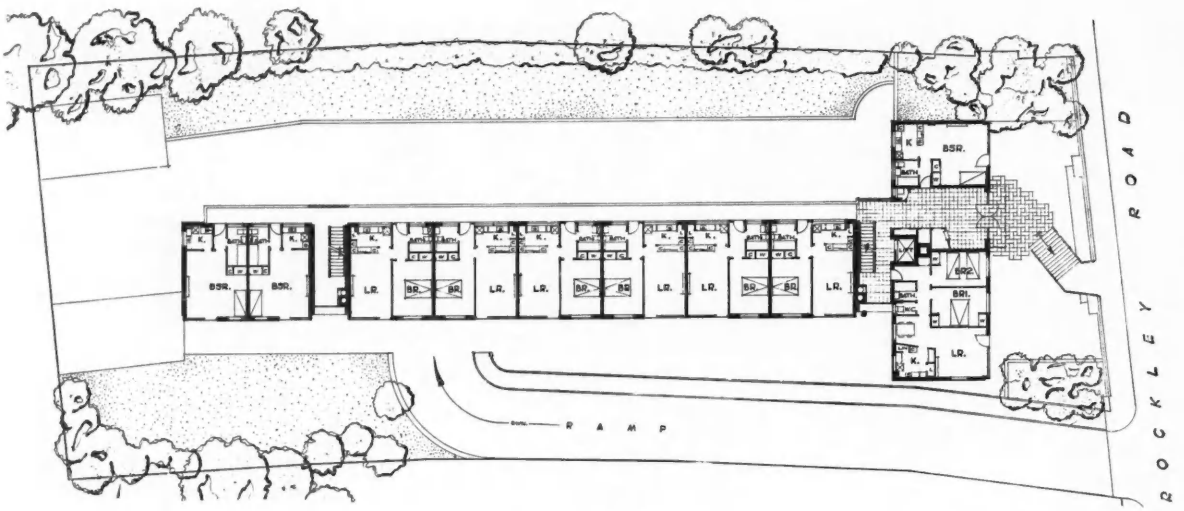
Architects: COLLCUTT & HAMP, F/AA.RIBA

Structural Engineers: WHEATLEY BRYAN & PARTNERS in association with Z. PICK, AMICE, AMIStructE, MSocCE (FRANCE)

Builders: GEE, WALKER & SLATER, LTD.



LOWER GROUND FLOOR PLAN.



Ground-floor plan.

ROCKLEY COURT, which contains 11 bed-sittingroom flats, 30 one-bedroom flats, nine two-bedroom flats, garaging for 30 cars and 34 tenants' stores, was erected for a Property Investment Company.

The site is a disused railway cutting originally carrying two tracks, the width of the cutting at track level being 45 ft. and the maximum 105 ft., the lowest level being 15 ft. below Rockley-road which provides the only street frontage, and which for most of its length is carried on a bridge over the disused tracks.

The difficulties of the site were overcome by planning a long narrow block facing south, with a short end block parallel to the road facing south and east, and by using the lower level of the cutting for garages, boiler house, fuel store, tenants' stores, transformer and switch gear, and the roadway giving access to the garages and refuse chambers. The long narrow shape of the main block determined the choice of access balcony approach to the flats.

The ground floor, though above the natural ground level, is some 6 ft. below the crown of the bridge, and the entrance hall is approached by steps from the bridge down to a forecourt.

The entrance hall gives directly on to the staircase and lift hall, which serves for access to the short block, and the access

Detail of window treatment on south elevation.

View of north elevation.

View of front elevation from the east.

balcony serving the long block. A secondary staircase is placed near the far end of the long block; both staircases and the lift give access to all levels.

The flats are provided with delivery hatches and meters accessible from outside for the convenience of tenants out during the day. All kitchens are entered from the living-room and linked visually by glass sliding hatches. Provision is made for gas or electric refrigeration and all surfaces likely to be splashed are tiled.

The exterior of the building is finished in plum-coloured bricks on the main faces with light yellow-brown bricks for returns. The soil water level is an average depth of 2 ft. 6 in. below the level of the bottom of the cutting. The isolated foundations were designed to avoid excavation below the water level and are as a consequence very shallow. The reinforced concrete framework was cast *in situ* with the exception of the beams which were precast on site and hoisted into position by the tower crane. All concrete was placed with poker vibrators. Following is a list of sub-contractors:

Windows, Crittall Manufacturing Co.; bricks, Marston Valley Brick Co. and Uxbridge Flint Brick Co. (suppliers) Turner and Sons; lifts, Keighley Lifts; electric installation, Phoenix Electric (London), Ltd.; asphalt, F. J. Prater Asphalte Co.; floors, Accotile by National Flooring Co.; terrazzo, Art Pavements and Decorations, Ltd.; railings access blacony, F. A. Norris and Co.; railings and entrance canopy, Light Steelwork (1925), Ltd.; stair balustrades, R. Smith, Horley, Ltd.

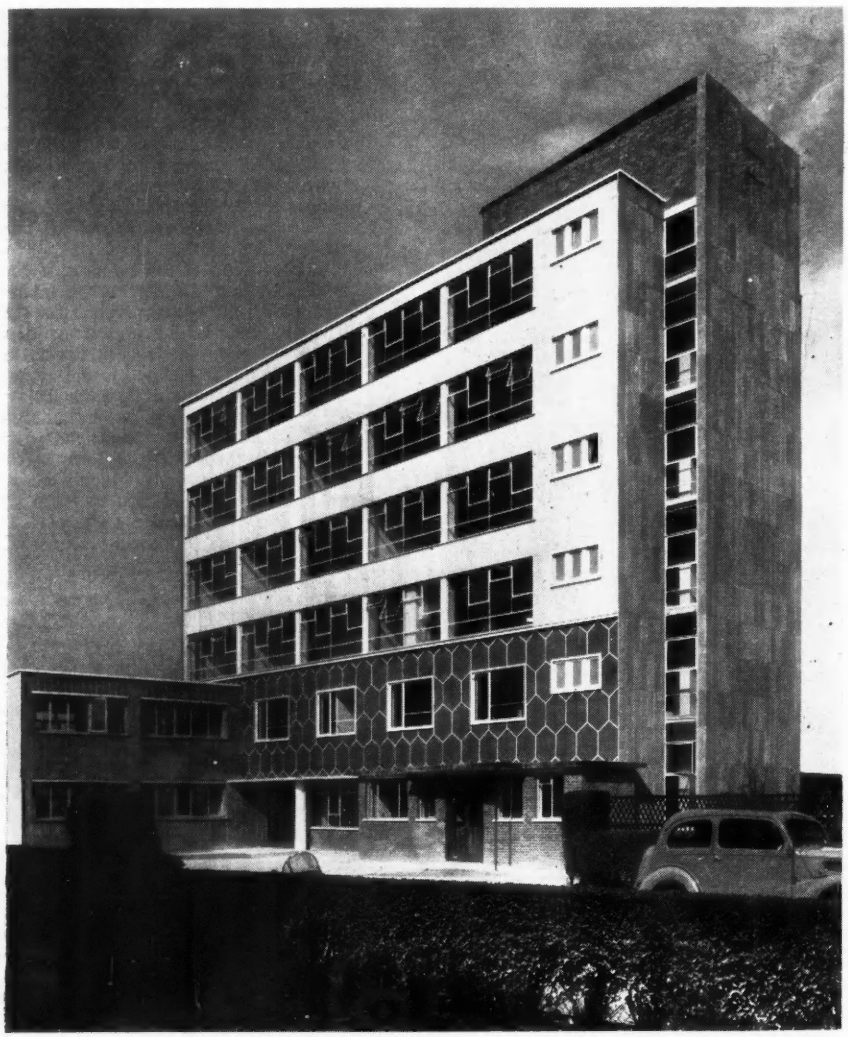
Paint, Jenson and Nicholson, Ltd,; prestressed concrete, Girlings Ferro Concrete; glazing, Faulkner Green and Co., Ltd.; tarmac, General Asphalte Co., Ltd.; interior glazed tiles, Harradine and Rouse and Co.; exterior glazed tiles, S.G.B. (Dudley); gas installation, North Thames Gas Board; sanitary fittings, Stitsons Sanitary Fittings, Ltd.; ironmongery, Kirby Brothers; cement paint, Sealocrete Products, Ltd., and Stic B Paint Sales, Ltd.

The general contractors were responsible for: Reinforced concrete frame, *in situ* and precast; plumbing; heating and hot water; plastering; joinery; painting and reconstructed stone.

FLATS AT ROCKLEY COURT, SHEPHERD'S BUSH

General view of the scheme from the south-east.

Detail of main entrance.



ELECTRONICS FACTORY AT RICHMOND

Architect
KENNETH ANNS, FRIBA

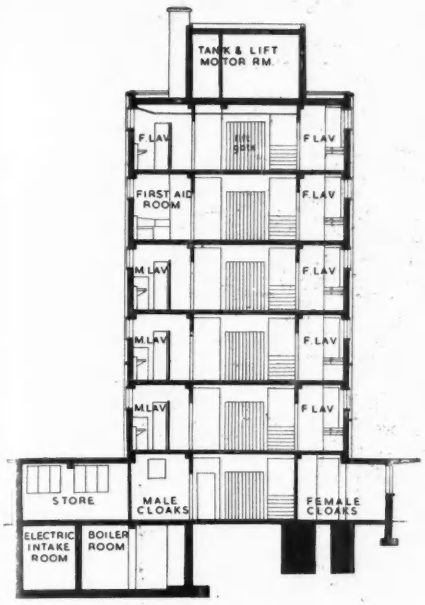
Consulting Architects to CAS (Industrial Developments), Ltd.
LLEWELLYN SMITH & WATERS, FF.RIBA

Quantity Surveyors
GLEEDS

Consulting Engineers (Structural)
ANDREWS, KENT & STONE

Consulting Engineers (Mechanical & Electrical)
J. STINTON JONES & PARTNERS, LTD.

Builders
CAS (CONTRACTORS), LTD.



SECTION A-A

The heating installation consists of one cast iron sectional boiler, oil fired, with a pump supply with two-pipe up-feed mains and cast iron radiators on reverse return sub-circuits. The hot water supply is from one cast iron sectional boiler, oil fired, feeding two indirect cylinders with gravity secondary circulation of two pipe up-feed.

The electrical installations include normal electric lighting, floodlighting, telephone installations, loud speaker system and "Minerva" smoke detector system for prevention of fire.

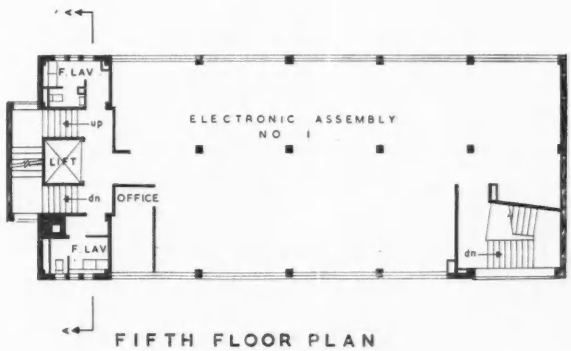
Full canteen and kitchen services are planned on the ground floor. Following is a list of sub-contractors:

RC work, Helical Bar and Engineering Co., Ltd.; steelwork, T. C. Jones and Co., Ltd.; cladding, Wates, Ltd.; windows and metal door frames, Williams and Williams, Ltd.; electrical work, Bective Electrical Co., Ltd.; heating and hot water, J. H. Nicholson and Co., Ltd.; ironmongery and metal work, Comyn Ching and Co. (London), Ltd.; fireproof doors, Dreadnought Fireproof Doors (1930), Ltd.

Wood block floors, Hollis Bros., Ltd. and Vigers Bros., Ltd.; jointless floors, Semtex, Ltd.; Sundeala boarding, Sundeala Board Co.; reconstructed stonework, Empire Stone Co., Ltd.; fire-fighting equipment, Merryweather and Son, Ltd.; asphalt work, Unity Asphalt Co. (London), Ltd.; plumbing work, Dent and Hellyer Sanitation, Ltd.; lifts, Waygood Otis, Ltd.

Plastering work, E. E. Cheeseman and Sons; painting, International Paints, Ltd.; sanitary work, John Bolding and Sons, Ltd.; kitchen and canteen fittings, Intel, Ltd.; gas installation, North Thames Gas Board; joinery, James Joinery, Ltd. and R. Cattle, Ltd.; venetian blinds, Horsley Smith and Co. (London), Ltd.; electric light fittings, Falk Stadelmann and Co., Ltd.; faience, Leeds Fireclay Co., Ltd.

ELECTRONICS FACTORY AT RICHMOND



FIFTH FLOOR PLAN

GROUND FLOOR PLAN

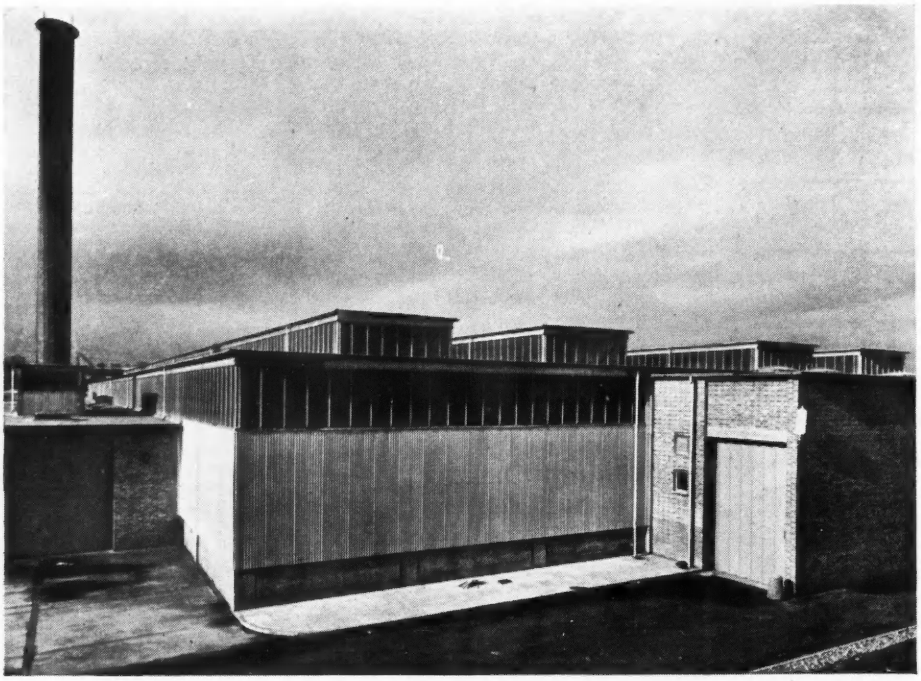
BUILT for Electronic Instruments, Ltd., this new laboratory-type factory, situated in Lower Mortlake-road, Richmond, has six storeys and cost approximately £56,000. The dual problem of a restricted site in a semi-residential area has been successfully solved and the result is a bright and distinctive building.

The total floor area of the building is about 16,000 sq. ft. It consists of a multi-storey laboratory-type factory block on six floors, 75 ft. long, 30 ft. broad and 60 ft. high, with a two-storey office block 25 ft. long, 20 ft. broad and 20 ft. high. The total site area is 8,750 sq. ft. and the ratio of site to building 2 : 1.

Work on site was started in August, 1954, and completed on March 31, 1955. This is a building time of 35 weeks as compared with the target set of 40 weeks. At peak periods up to 100 men were employed on site at one time.

Construction.—The main building is steel-framed with ground and five upper floors providing a maximum possible open working space. The external walls are formed of an outer cladding of precast concrete slabs with exposed aggregate of Derbyshire spar and Criggion granite and faience slabs. Behind the cladding, the inner skin is formed of breeze blocks with the intervening space filled with "no-fines" semi-cellular concrete. Internal partitions are formed of breeze partitioning.

Steel-framed windows have been incorporated giving a maximum of daylight penetration. Floors in the office block are wood block and in the main factory *in situ* Semtex with a designed loading of 100 lb. per sq. ft.



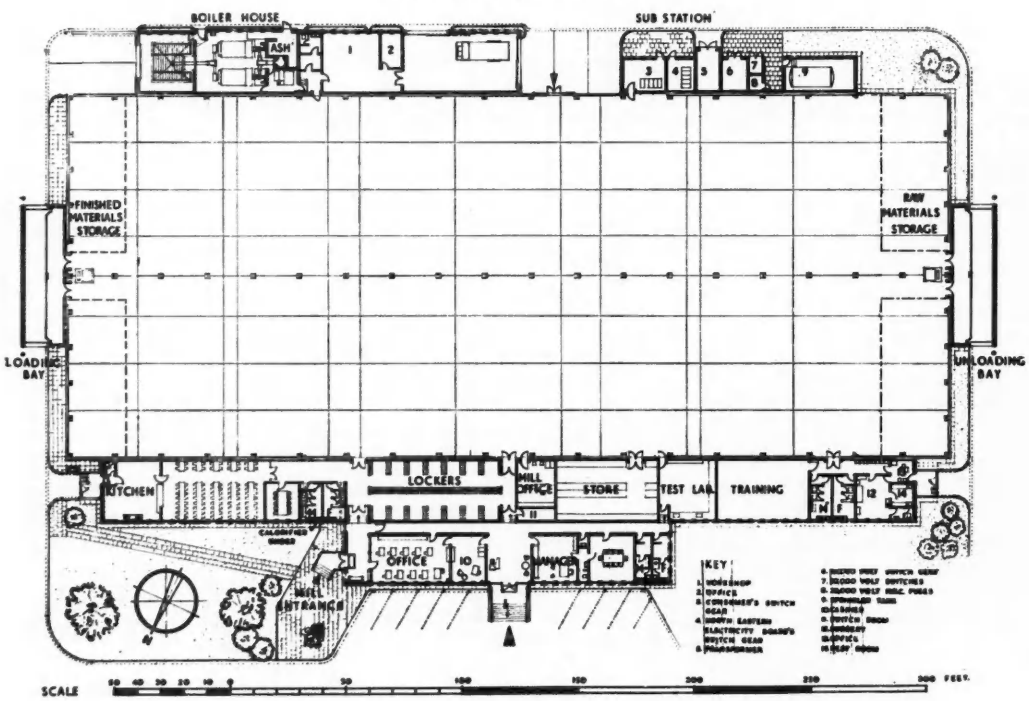
View from the south-east. Below: Plan of the building.

FACTORY AT PETERLEE NEW TOWN

for Jeremiah Ambler & Son, Ltd.

SIR WILLIAM HOLFORD, MA, FRIBA, & W. M. SHENNAN, ARCHITECTS

BOVIS, LTD., BUILDERS



THIS new factory has been built for the North Eastern Trading Estates, Ltd., at Peterlee, near Easington, County Durham. The tenants are the Bradford worsted spinners, Jeremiah Ambler, Ltd.

The factory is a single-storey steel structure, 380 ft. long by 150 ft. wide with an internal height of 17 ft. The walls are aluminium clad with patent glazing above. The office block in front of the factory building is 350 ft. long by 25 ft. deep with a front annexe 140 ft. long by 25 ft. deep. It is of plain brick construction with aluminium windows.

To allow for mining subsidence the brick-built units are designed on separate foundations and movement joints allowing vertical and horizontal movement between the two types of building are incorporated. Similar movement joints are provided between the office block and the ancillary accommodation. Vertical expansion joints in the brick buildings are also provided for units in excess of 75 ft. long. The engineering services have also been designed under the same principles and movement between the brick load-bearing structures and the steel frame factory has been arranged.

The surface of the factory floor is hardened granolithic laid *in situ* with the sub-floor. Floors in the administration section and the medical suite, canteen and staff dining-room floors are covered with Accotile. The kitchen area and the test laboratory floors are laid in quarry tiles. The remaining floors are all laid in granolithic.

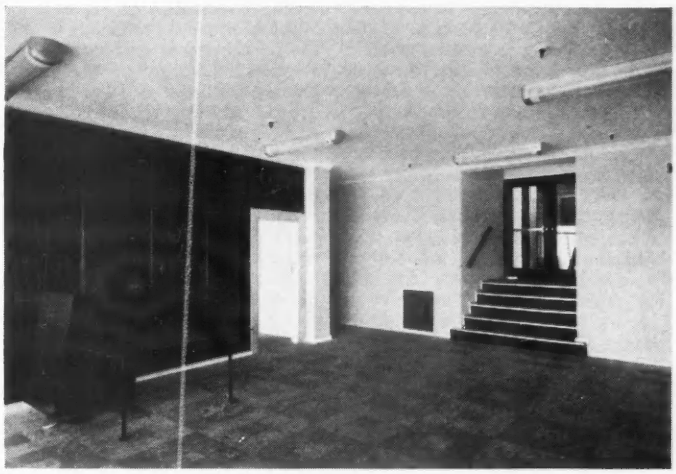
The heat source of the factory and other buildings is provided by two boilers ; steam is supplied to the heating batteries of the air-conditioning units for warming the air into the factory. Following is a list of sub-contractors:

Redpath Brown and Co., Ltd., structural steelwork; William Briggs and Sons, Ltd., bitumetal roofing; W. H. Heywood and Co., Ltd., patent glazing; Mellowes and Co., Ltd., aluminium windows; Tentest Fibre Board Co., Ltd., aluminium cladding; W. F. Holloway and Bros., Ltd., "Stramit" cladding; Bolton Gate Co., Ltd., shutter doors; Williams and Watson, Ltd., roof lights; Milners Safe Co., Ltd., rolling shutters; Mellor Bromley and Co., Ltd., air conditioning plant; Cairns (Newcastle), Ltd., heating, gas, hot and cold water supply installations; Mather and Platt, Ltd., sprinkler installation; Neuchatel Asphalte Co., Ltd., asphalt.

Herbert Morris, Ltd., electric cranes; Tileman and Co., Ltd., reinforced concrete chimney; Troughton and Young, Ltd., electrical installation; Expanded Metal Co., Ltd., false ceiling; Newcastle Glazing Co., Ltd., sheet glazing; Stuart's Granolithic Co., Ltd., granolithic; W. E. Pickering, Ltd., plastering; Newalls Insulation Co., Ltd., limpet asbestos insulation; Conways, Ltd., terrazzo partitions; Summers and Co., wall and floor tiling; Rowan and Boden, Ltd., Accotile floors ; Alston Limestone Co., Ltd., tarmacadam roads; Peerless Fencing Products, Ltd., fencing.

FACTORY AT PETERLEE

Entrance to office block.



The entrance hall.

The factory interior.

Conditions of Building in City Centres

SIR WILLIAM HOLFORD'S PAPER AT THE RIBA

A PAPER on "Conditions of Building in City Centres" was read by PROFESSOR SIR WILLIAM HOLFORD, FRIBA, MTPI, at a meeting of the Royal Institute of British Architects, held at 66, Portland-place, W1, on May 17. Mr. S. Rowland Pierce, vice-president, RIBA, was in the chair. We take the following extracts from Sir William Holford's remarks:

An old saying, that has since become a history book tag, laid it down that "Well Building hath three Conditions. . . ." And this evening my object is to inquire to what extent this statement still holds good. I am going to apply it to a particular sort of building—that which occurs in the core or centre of a town, and which, being so often a second or a third building on the same piece of ground, is not a simple but a complex architectural process. I hope to show that notwithstanding the fact that certain fundamental principles of civic design are as valid now as they were 2,000 years ago, the conditions of building in city centres are vastly different. Some of them, in fact, can hardly be brought at all under Sir Henry Wotton's famous umbrella.

There is a good deal of very vocal discontent with the present results of post-war reconstruction. I doubt if it is of the type that is called divine; but it exists. And the fact that it has been to some extent fomented is beside the point. Just because there are a large number of people—including large commercial concerns and government departments—who do not care a scrap about the design of the buildings they erect or occupy, it is all the more important that others should care enough to make a fuss about it.

Architecture, moreover, is the product of a civilisation. But it is an exaggeration to say that civilisation is a product of architecture, that we have only to conceive an environment in the pure essence of taste, to have it immediately peopled by financiers and factory hands, clergy and clerks, to say nothing of the town planners and common council men that have been anathematised by the President of the Royal Academy.

It is, I know, a banal thing to say—yet it is still terribly true—that any improvement that is not just a veneer on the surface of our civilisation must come from its stock and go down to its roots. Taste has to be achieved; it cannot be supplied in response to an advertisement. And the sources of improvement in building matters must surely be the patrons and the agents of building; which are ourselves, in our various guises and disguises—sometimes an elected body, sometimes a voluntary association, sometimes individual householders and sometimes the Press.

The arts are peculiar in that they do not always wait for the pistol before starting down the course. If building cannot begin on a well-considered programme, it must begin on a sketchy one, or on none at all. It is a commodity the country must have, even when it cannot thoroughly afford it. This is why I think it might be useful to discuss the conditions, technical and administrative, that govern "well-building" in the central areas of our cities.

Circulation

The first condition of building in the already built-up centres of our towns consists in coming to terms with traffic. There has always been congestion of a sort in city centres: one reads of it in third-century Rome, in twelfth-century Paris, in the London of *Pepy's Diary*. What is new in traffic circulation is not only the internal combustion engine and the increase in numbers, but the lack of relation between this accelerated movement and the environment through which it passes. It is as if the throng of the audience chamber had given way to the aimless criss-cross of the cocktail party.

The effect of this on the individual building or building group is well known to architects; yet we do not seem to have accepted the logic of the situation nor pressed for a cure. The fact is that no central building is self-contained. Even if it is not a traffic generator in itself, it has to find its place in the street pattern of the town; and at present that street pattern is either obsolete or inappropriate, or both. Millions of pounds have been spent on new accommodation in the central areas since the war. But the amount spent on the improvement of circulation in the same areas is negligible.

THE HYDE PARK SCHEME

Even where the pre-war system of roads and railways, parking spaces, and piped and cabled services has to suffice for reasons of economy all sorts of inappropriate uses and additional functions are loaded on to them. Because the direct route through the centre of Cambridge is narrow and slow, and because Queens Road—which passes through "the Backs"—is an existing by-pass from Huntingdon-road to the station, it is seriously suggested, even now, that it should become the trunk road for through traffic. Much the same argument applies to the East Carriage-drive in Hyde Park, between Marble Arch and Hyde Park Corner. To relieve congestion at these two points and in Park-lane, it is now proposed to sacrifice it on the altar of convenience. It is only a partial and temporary means of alleviation; for it is obvious that what is needed is a more radical solution to the problem of traffic congestion *as it will be ten years ahead*, and not as it was before the war. But cost deters us; and so the responsible authorities have to do the best they can with inadequate means. One cannot help asking, none the less, what the position will be when this tedious, difficult and by no means economical operation is over, and we have lost one more of those features which make London's Royal Parks almost unique in the urban centres of Europe.

After discussing the problems of providing parking space for vehicles in or near buildings, the speaker continued: I would like to mention one scheme out of several where a comprehensive approach to architecture and traffic is being attempted and where the primary design is being—so to speak—welded into a grand design. This is the Park Hill Redevelopment Scheme, near the City Centre of Sheffield [described in *The Builder* of April 22]. Here Mr. Womersley, the City Architect, has planned a pedestrian precinct, rear access roads, parking, garaging, and slow movement by a complete system of street decks. Housing, shopping and traffic circulation are all part of a unified design.

Design and Lettable Area

The next condition of building in a city centre, on which I would like to comment, is the economic condition and its effect on the external appearance of the building.

It is quite common in practice to have to meet the requirements of more than one client. But somewhere there is the executive client—if one may so call him; with his surveyor and his accountant. This is the man who specifies the "commoditie," leaving it to his technical advisers to see to the "firmness" and to create the "delight." The perfect marriage of patron and architect should produce the best possible conditions for design. But who is the patron? The building owner, who may be building his firm's head office, or for part-occupation, or wholly to let, is concerned first and foremost to make his enterprise pay. The adviser who is really planning his building is his estate manager or his accountant.

All three are likely to leave matters of appearance, amenity and civic design to the public authorities; and they will expect their architect to see the scheme through the Royal Fine Art Commission, the Preservation Societies, and the local town planning committee—all of whom they regard from their own point of view as hazards. Elaboration of the machinery for passing plans simply increases the hazards; and this widens the gap between private and public interests. A speculative architect like John Wood at Bath, or John Nash in London, put his designs quite literally on the market; he knew that his patrons would judge him by them. But it is often the case to-day that even public-spirited owners disregard the factor of design, because it does not seem to them to be their business. If you doubt this, look about you.

The position of the architect in this situation is one of great difficulty. If his reputation is as great as his personality he may ignore the economic condition of building and concentrate on design. If he is a greater man still, he will bring his client round to his own way of thinking. History can afford us examples of patrons who have counted a fortune well lost in the achievement of a real work of architecture. But those examples are growing less frequent; and the more likely result of such an attitude nowadays is an uneconomic building (not neces-

sarily an unprofitable one) which does not outlive its designer.

The architect who comes to terms with the economic problem, accepting it as one of the limitations of his design and making a virtue of it, can sometimes be fortunate and sometimes the reverse. There are occasions when public and private interests chime togeher like a peal of bells. More often, however, the high cost of building in central areas, which may run from about 6s. 4d. to 11s. 6d. a cubic foot (and which is still rising), forces the building owner to a very precise calculation of outgoings and income based on an amount of floor space which he forthwith regards as the economic minimum for the job. That figure becomes a sort of King Charles' head. If it is reduced, the building owner says he cannot afford to go on with the job. Yet the planning authority may ask for alterations, the highway authority for a set back, the Royal Fine Art Commission for a reduction in bulk. Even the archæologists may want to get at some Roman remains in the substructure. And if some uneasy compromise is reached on all these points there is still the risk that an indignant citizen, months later, may realise what is about to happen to a site for which he has a sentimental regard, and write to the papers saying "Is it too late to prevent this great opportunity from being frittered away?"

"UNPRETENTIOUS" BUILDINGS

With the next level of building activity, in which the architect (if there is one) himself does not attempt to do anything beyond meeting the demand for accommodation, I need not say much. The remedy is obvious. But I cannot resist making one comment, which I hope will not sound too satirical. It is that a good deal of this kind of property, erected after the Great Fire of London, in the early 1670s, is just the kind of building that we are now most anxious to preserve. It is comparatively small, unpretentious, restorable, and human in scale; the lowest common denominator of the urban sum. Personally I would not be very concerned about such humdrum building to-day, unless it loses those qualities and becomes enormous in scale or pretentious in character.

But for the rest, what remedy can be found? There are many in this room who have much experience in these matters, and I hope they will discuss it. Since I am the provoker of discussion, however, perhaps I may be allowed to make three points by way of preliminary.

The first suggestion is one of method. From the point of view of civic architecture the interests in building promotion appear to be too divided. The public patron is very largely supplanting the private one, and yet—paradoxically enough—the public interest in architecture is not being so well served. Could there not be a greater concentration of interest at one point in the sequence? Could not the landlord combine public conscience with private enterprise, and become the real patron of the designer? The history of estate development in this country, at least in the past three centuries, has been more interesting than that of complete town building. Regent Street and the Regent's Park is a good example of a planned project; Lincoln's Inn of a unity that has been maintained over centuries. Could we not more frequently apply the experience of the great urban estates to what is now called "comprehensive development areas" in our towns? The owner of the land could be a local authority, a public body, a Trust; and should be held accountable for it in all its aspects —social, economic, architectural. The landlord should appoint his architect and his other technical advisers, he should obtain a "clearance" for the site, write a careful programme for the designers to work on, and approve necessary amendments afterwards. This would be no formal matter of administration; it would be personal and particular—an active promotion of a scheme, in which all the participants would have a common interest to produce something not only economic but worthwhile.

The second point is one that has been made before, by Richard Llewelyn Davies and others. It is that structural research should be extended into the social field so that we can find out something more about the *uses* to which buildings can or should be put, the kind of programmes that will fit those uses, and the ways in which such programmes can be formulated. This is a job of client-education as well as of architectural research; and I do not suggest that it will solve all our problems. But it is certainly interesting to see what it has done for schools, under the sponsorship of the central and local education authorities, and what it is beginning to do for hospitals and laboratories with the help of the Nuffield Foundation.

PUBLIC RELATIONS

The third point is an unusual one; it concerns public relations. Nowadays, it is quite common for the design of a potential building to be shown to the public and reproduced in the Press before there is a client or a building programme at all. In central areas, more especially, something has to go into the shop window at an early stage, and be made available to the Press, even if the designs are subsequently altered. This seems to be essential not only for purposes of comprehensive design but as a concession to public interest.

This is really a problem of presentation. Models, or photographs of models, to a small scale, are sometimes prepared in block form. Occasionally elaborate perspectives are drawn. The danger is that laymen and authorities alike may fix on a building form that has been designed from the outside inwards, instead of from the plan outwards. It is then difficult to depart from it. Nevertheless, there is much to be said for some form of presentation at this preliminary stage; and the planning authorities themselves could take a larger hand in it.

"The Friction of Space"

To describe the third condition of building—the last which I have time to mention this evening—I have borrowed a sociologist's term, "the friction of space." The term is applicable to the town as a whole, but in a particular degree to its core, the place where maximum accommodation and maximum circulation occur together.

The twentieth-century city is emptying out from the centre its residential buildings, its theatres and churches, its factories and its playgrounds. In their place it is concentrating financial and administrative buildings, exchanges, offices and banks. The new buildings are not interested in silhouettes and have no money to spare for towers and cupolas, turrets and ornamental roofs. A decent lid for the tanks and lift-motor rooms is the most to which they aspire; and silhouette, if it is to be achieved at all, is made from the body of the building itself and not by any ornamental headgear. Even to succeed in this, a comprehensive treatment of groups of buildings must be possible, such as for the Rockefeller Centre in New York or the Back Bay project in Boston. And the principle behind these compositions is an aesthetic principle, no longer based on the symbolic or emblematic ideas of medieval or Renaissance times, but deliberately controverting them. Cathedral and palace no longer dominate secular buildings; the guild halls of the City Companies are moving into the basements of rent-producing commercial structures. Instead, one slightly taller office building projects above a host of other office buildings, or—more logically —a ring of tower blocks, or a pattern of slabs of equal height, stands sentinel over the historic core of the city.

The more I think about this kind of development, the more hope I see in the accentuation of this difference between the old idea of scale and silhouette and the new—a difference that has already occurred in the social and economic functions of a city centre. An office block 300 ft. high, not far from St. Paul's, and designed in the style of the western towers of the Cathedral would, I think, be offensive as well as absurd, But a widely spaced group of such towers, impersonal, unassertive and aloof, their vertical lines predominant, their surfaces reflective in terms of light and atmosphere, and their outlines simple, lean and entirely without fuss—that, I think, would be acceptable, and might even be interesting; even though it would mean shifting some architectural value from the skyline to the ground line.

THE MOST FABULOUS LUXURY

At any rate, I can think of a number of alternatives that would be far less satisfactory. If quantity can be stacked in orderly vertical piles, then quality—the historic monuments and exceptional buildings—can be given the space and the setting it deserves at the ground level, where it can be most appreciated. In a city centre, space in the midst of congestion is the most fabulous of all luxuries. And so, it seems to me, we ought to endow our buildings of architectural interest, whether they are contemporary or of the past, with sufficient space to enable us to use them and to look at them. At the same time, if efficiency of distribution and productivity in industry is to be maintained, the centre must provide at

least headquarter accommodation for these activities and for the finance houses, the exchanges and the commodity markets that go with them. How otherwise can be combined the three kinds of space required in the central area of a town—production space, circulation space and leisure space—than by piling up one in the vertical plane so as to disencumber the horizontal plane for the benefit of the other two?

If this theory were put into practice it would, of course, demand comprehensive design and an overriding control on the quantity of accommodation that town services and transport would permit.

As to the floor space control, this is as necessary but as negative as all forms of regulation unless combined with imaginative handling of the limitations and opportunities which it embodies. Central London has now had some years' experience of a control based roughly on a ratio of 5 to 1 floor space to site space. The control has been criticised as being either too rigid or too flexible and it is probably true that the plot ratio and the floor space index need reconsideration. Had they not been applied, how much worse would the present situation have been!

Despite traffic delays and the dissatisfaction expressed over the architectural form of much of our post-war reconstruction, London retains the special attraction of what Steen Eiler Rasmussen has called "the scattered city." It is still open to improvement. And in comparison with other and better-planned towns whose pattern of growth is denser and more fixed, this is in itself a virtue. Most British towns, in fact, assisted by a sound and consistent policy of dispersal for all those activities which are not essential at the centre, could still solve many of the problems created by the friction of space. But it is only too clear that in this connection time is not on our side.

In these reflections on a few of the conditions of building in city centres I am well aware of the fact that I have not said anything of the slightest practical use to the architect faced with the problem of putting more floor space on a given area than the site will hold, meeting all the requirements of the authorities, keeping down the cost of building (now standing at nearly 370 per cent. of what it was in 1939), and at the same time producing a significant piece of architecture. My conclusion is, of course, that the individual design has little chance until the "grand design" is improved, together with all the conditions necessary to its "well-building."

News of the Week

COUNCIL HOUSES TOO COSTLY

ALD. MISS AGNES T. HUGHES, Mayor of Conway, in a review of her year of office at the last meeting of the town council, said that they had had to call a halt to the building of houses owing to the high costs of such buildings. During the year no new housing scheme had been undertaken, she said. In its way that had had one good effect because it had meant that many people who could afford to build houses for themselves had taken advantage of the facilities afforded for private house building.

IN DARKEST AFRICA

A REPORT from the correspondent of *The Times* in Pretoria states that the Executive Committee of the Transvaal Provincial Council, which is controlled by the Nationalist Party, has appointed private architects for 57 of its projects in this year's capital works programme and has ruled that their documents shall be submitted in Afrikaans.

The Administrator, Dr. Nicol, commented on May 11 that for 45 years such documents had been submitted in English; even a few years in Afrikaans would not restore the balance. The technical terms required for architects' documents were available in Afrikaans.

When the Administrator was asked whether architects might submit duplicate documents in English and Afrikaans, he replied that there could be no harm in sending an English copy.

TOURS TO NEW TOWNS

THE Town and Country Planning Association have arranged a number of one-day coach tours to the new towns during the coming months. The first of these tours, held yesterday (May 19), was to the LCC Estate at Oxhey and to Hemel Hempstead (Herts.) new town.

On June 9, Mr. Reginald Stamp, chairman of the housing committee, LCC, will lead a tour to his council's estate at Merstham, and to Crawley New Town (Sussex), while on July 20 Welwyn Garden City and Hatfield New Town (Herts.) will be visited and will include a tour of residential and factory areas, shopping centres, schools, etc., and Ludwick social centre. Harlow (Essex) New Town will be visited on September 7 and the visitors will see the first completed neighbourhood unit there (Mark Hall and Netteswell), the group medical practice centres and the Town Centre construction, etc.

Full particulars of these tours are available from the Secretary, Town and Country Planning Association, The Planing Centre, 28, King-street, WC2.

HOUSING 1945-55

THE exhibition entitled "Housing 1945-55," which is now on view at the Building Centre, 26, Store-street, WC1, is a preview of the United Kingdom contribution to the International Exhibition of Housing organised by the International Union of Architects and is to be held on the occasion of the fourth IUA Congress at The Hague in July. The exhibition has been prepared by the Building Centre from material selected by the UK committee of the IUA. It was designed by Messrs. Cassidy, Farrington and Dennys, AA.RIBA.

PLUMBERS' ANNUAL MEETING

MR. ALBAN D. R. CAROE, FRIBA, will preside at the annual meeting of the general council of the Registered Plumbers Association which is to be held in the council chamber, Whitley Bay, on June 3. About 100 delegates and representatives from all parts of the country are expected to be present, including Professor W. B. Edwards, FRIBA, MTPI, representing the RIBA, and Mr. H. Kindred, on behalf of the NFBTE.

ARCHITECT'S APPOINTMENT

MAJOR K. MARTIN BAXTER, ARIBA, AMTPI, ARIAS, aged 37, formerly deputy chief architect and planning officer, Peterlee Development Corporation, has been appointed to the newly created post of borough architect of Bolton. His duties begin on August 2.

GROUP'S 100th MEETING

TO CELEBRATE the 100th meeting since their inauguration in 1943, the Arcon Development Group held a luncheon on April 21 at The Café Royal, W1. The function was presided over by the chairman, Mr. W. F. Lutyens, and representatives were present of the various member firms, including Imperial Chemical Industries, Ltd.; Stewarts and Lloyds, Ltd.; Williams and Williams, Ltd.; Taylor Woodrow (Building Exports), Ltd.; and the United Steel Companies.

Founded to develop new building materials and techniques, the Arcon Group has so far exported structures to the value of £5m., exports this year having been at the rate of 150,000 sq. ft. of coverage per month. The marketing firm offer not only a range of prefabricated structures, but also a comprehensive service in the completion of projects of any size. The basic factor in the design of these light-weight structures has been to make them suitable for all climates, as well as simple to deliver and erect, and prototypes are erected for research purposes at a development site at Southall. Mr. A. M. Gear, FRIBA, and Mr. Rodney Thomas, ARIBA, are the Group's consulting architects.

COVENTRY CITY ARCHITECT

MR. ARTHUR LING, BA, ARIBA, MTPI, has now taken up his appointment as City Architect and Planning Officer with the Coventry Corporation. His address is Bull Yard, Off Warwick-row, Coventry (tel.: 64064).

PROFESSIONAL ANNOUNCEMENTS

MESSRS. COVELL AND MATTHEWS, F/ARIBA, AMTPI, formerly of 48, Seymour-street, Portman-square, London, W1, have now removed to 34, Sackville-street, Piccadilly, W1 (Tel.: Regent 2291/3.)

MESSRS. J. W. BEAUMONT AND SONS, chartered architects, have moved from Danlee Buildings, 53, Spring-gardens, Manchester 2, to 51, Mosley-street, Manchester 2 (Tel.: Central 0994/5).

FROM "THE BUILDER" OF 1855

Saturday, May 19, 1855

ECONOMY IN STREET PAVEMENT.—The Hartlepool Board of Health are about to try artificial stone blocks for stones, prepared under the direction of Mr. F. Morris, the borough surveyor. The composition is the same as that of the blocks used in building the new pier at Hartlepool, the cement being that of Messrs. Aspdin, Ord and Co., of Gateshead. The blocks are made nine inches in depth by six in thickness. They are chiefly composed of cement and gravel.

LONDON MASTER BUILDERS' ASSOCIATION

Luncheon to the Lord Mayor

MR. L. J. HOLLOWAY, president of the LMBA, presided at the LMBA's annual luncheon to the Lord Mayor, which took place in the Savoy Hotel, London, on Monday.

Welcoming the Lord Mayor, MR. HOLLOWAY said that several of his predecessors in welcoming the Lord Mayors of the day had offered every assistance that they could give to the rebuilding of the City of London. It fell to him to be the first to offer congratulations on what had so far been achieved. Building work to the value of some £100m. had been or was being carried out within the City, and largely by LMBA members.

"Much, of course, remains to be done," said Mr. Holloway, "and in one aspect of this work I ask for your special interest. You have recently decided to appoint an architect for the City to co-ordinate and supervise the work which is still to be done. Will you impress upon him, Sir, the need to persuade intending building owners that the right way to get a job up quickly and economically is to plan it properly before building is started? If he is successful he will be saving them and the City millions of pounds.

"It is essential to give the architects, engineers and surveyors plenty of time in which to do their part before an active start is made on the site, and to give the builder sufficient time, having gained a contract, to make the necessary arrangements before he is forced to start.

"I am fully aware that an empty site costs money, and that rents are looked for at the earliest possible moment, but I am certain that few people yet appreciate just how much money is saved on building costs by the proper advance planning of a building project.

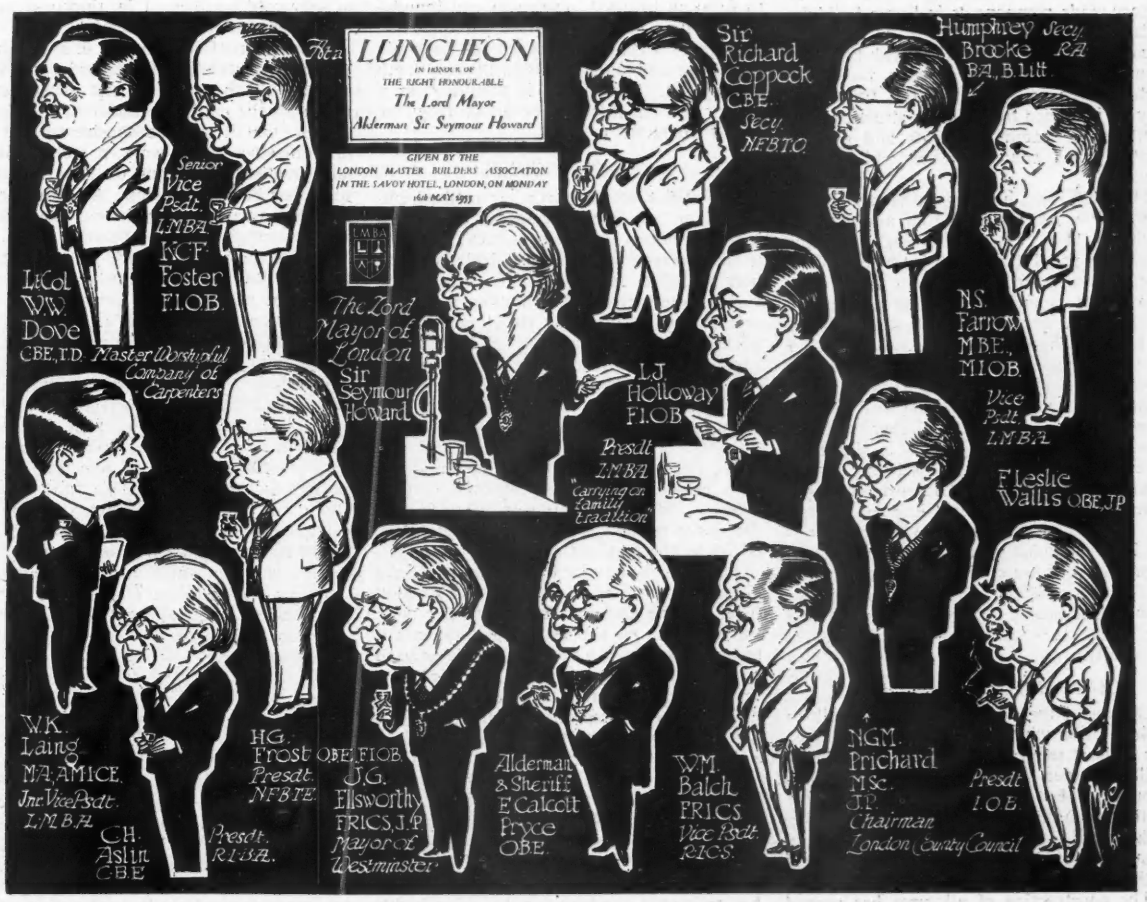
"One of our past-presidents recently built for his own company's use a new block of offices. He practised what he, we, and others have been preaching for years, and he claims that he made a saving of 10 per cent. on the estimated cost of the work. He did not start to build before he was ready to do so. For the rebuilding of the City we talk in terms of hundreds of millions. Suppose we be conservative and look for a possible saving of five per cent."

Replying, the LORD MAYOR, Alderman Sir Seymour Howard, said that so much depended on the rebuilding programme of the City of London, not only for the present generation but for generations to come. All kinds of important questions rested on the right decisions being made, such as the provision of open spaces, the number of shops needed and the residential facilities to be provided.

Continuing, the Lord Mayor said that the value of new building work approved in the City was £107m., while buildings in course of planning amounted to another £9m. and an additional £13m. was represented by building about to commence operations. All this meant that in due course the City would put on a new look. Speaking personally, he hoped that some new residential facilities would be provided in the City.

Among those present were: Sir George Burt, Sir Richard Coppock, Ald. I. J. Hayward, Sir Norris Kenyon, Sir Frederick Leggett, Maj.-General C. Lloyd, Mrs. M. A. Montgomery, Sir Eric Seal, Sir Thomas Sheepshanks.

H. J. W. Alexander, R. J. Allerton, C. H. Aslin, M. W. Bennitt, L. J. Bradshaw, Humphrey Brooke, E. G. S. Buchanan, D. F. Cox, N. S. Farrow, H. G. Frost, J. S. Galbraith, N. Hannen, S. F. S. Hearder, G. Hill, G. H. A. Hughes, E. L. Jones, H. B. Kerr, W. K. Laing, G. C. Lawrence, I. M. Leslie, D. C. Mallam, J. R. Newman Booth, D. E. W. Parish, J. Rawlinson, W. E. Rice, D. C. Roberts, H. J. Shelley, P. Shepheard, P. Smallwood, C. D. Spragg, R. E. Stenning, C. G. Stillman, S. Tatchell, P. E. Trench, F. L. Wallis, F. L. Whitehead and A. W. Yeomans.


LUNCHEON
IN HONOUR OF THE RIGHT HONOURABLE
The Lord Mayor
Alderman Sir Seymour Howard
GIVEN BY THE LONDON MASTER BUILDERS ASSOCIATION IN THE SAVOY HOTEL, LONDON, ON MONDAY 16th MAY 1955
Lt.Col. W.W. Dove C.B.E., T.D. Master Worshipful Company of Carpenters
Senior Vice Pres. L.M.B.A. K.C.F. Foster F.I.O.B.
The Lord Mayor of London Sir Seymour Howard
Sir Richard Coppock C.B.E. Secy. N.F.B.T.O.
Humphrey Brooke Secy. R.A. B.A., B.Litt
L.J. Holloway F.I.O.B. Pres.dt. L.M.B.A. "Carrying on Family Tradition"
N.S. Farrow M.B.E., M.I.O.B. Vice Pres.dt. L.M.B.A.
F. Leslie Wallis O.B.E., J.P.
W.K. Laing M.A., A.M.I.C.E. Jnt. Vice Pres.dt. L.M.B.A.
C.H. Aslin C.B.E. Pres.dt. R.I.B.A.
H.G. Frost O.B.E., F.I.O.B. Pres.dt. N.F.B.T.E.
J.G. Ellsworth F.R.I.C.S., J.P. Mayor of Westminster
Alderman & Sheriff E. Calcott Fryce O.B.E.
W.M. Balch F.R.I.C.S. Vice Pres.dt. R.I.C.S.
N.G.M. Prichard M.Sc. J.P. Chairman London County Council
Pres.dt. I.O.B.

Some LMBA members and guests as seen by "Mac" at the luncheon to the Lord Mayor.

BUILDING RESEARCH, 1954

BRS Report Urges Industry's Greater Support

THE view that the building industry should give more direct financial support to the work of the Building Research Station than it does at present is expressed in the annual report of the Building Research Board for 1954, recently published. The Board states that it recognises the diversity of the industry, but is also aware of the increasing demands the industry makes on the Station. At the same time the Board welcomes the manner in which member firms of the National Federation of Building Trades Employers are providing facilities for full-scale trials of new methods and materials.

The report of the Director of Building Research includes an outline of the trend in structural engineering research towards performance tests on complete structures. These provide an important means of supplementing and of finding ways to more economical design methods. The report also describes the various tests being carried out to ascertain the solution to various building problems, and briefly outlines the data so far accumulated. Some sections of particular interest have been extracted from the report and are given below:—

The site study of new methods of construction is still concentrated on the scheme designed for the investigation of the value of factory-made components in house building. This involves building groups of about 30 houses to each of four designs with the same plan but incorporating a wide variety of factory-made components. The four types may be identified by the main structural elements used: traditional, brick and gypsum plaster panel, concrete block and no-fines concrete.

The traditional house, used as a basis for comparison, has a timber roof and external walls of 11-in. cavity brickwork. In the brick and panel design, the inner leaf of the external walls and all partitions are of gypsum plaster panels 2 ft. wide and storey height. The concrete-block house is based on an 18 in. by 9 in. by 9 in. cored block of clinker concrete which is used for the external walls; the internal partitions are of plasterboard on timber framing and the first floor is of prefabricated timber sections. The no-fines concrete house is the most highly prefabricated in this scheme, having room-size panels of plasterboard on timber framing used as permanent internal shuttering for no-fines concrete; the outer shuttering is of expanded metal on a timber frame; floor and roof are of dense concrete poured on similar timber-framed panels finished with plasterboard. Both the no-fines and the concrete-block houses are rendered externally.

COMPARISON OF RESULTS

Groups of these houses are being built in collaboration with local authorities; on each site at least two of the four types are being built in order to assist direct comparison. Work on one is already completed while the work on another three sites is progressing satisfactorily. Negotiations are practically complete for building with another local authority.

The construction of all types has proved satisfactory and, as may be expected where contractors are employing new techniques with which neither management nor operatives are familiar, there have been consistent improvements in productivity as the work has progressed. In fact, once the contractor had become familiar with the no-fines construction, it was possible to produce the superstructure of a pair of houses complete and ready for occupation in less than three weeks.

As noted in earlier reports, the provision of foundations for houses presents some difficulty throughout a wide area of Southern England owing to the shrinkable nature of the clay. The Station has been much concerned with the investigation of this problem as regards both the technical development of alternative methods of founding houses on shrinkable clay and the development of suitable machines for the excavation of foundations. Techniques that have been employed include strip footings of the traditional type but at greater depth, say 3½ ft., than is usual and the use of narrow trenches to the same depth but filled up to ground level with concrete. Bored concrete piles, about 10 in. to 12 in. in diameter and between 6 ft. and 12 ft. in length are now being fairly widely employed. The Station has developed a machine for boring and then under-reaming holes up to 33 in. in diameter, to form an inverted mushroom pad foundation. These pads are generally founded at a depth of 4 ft., but the machine is capable of boring and under-reaming at any depth under 6 ft. The auger is mounted on a tractor and can therefore be driven from site to site along the road.

RELATIVE COSTS

The choice of the particular method employed on any site depends, of course, on local conditions and the equipment available to the contractors, but there is little information available on the relative costs of the various alternatives. The Station, in collaboration with the Basildon Development Corporation, has made a study of the cost of foundations for three groups of over 20 houses using different methods. One group was provided with narrow concrete strip foundations, 4 ft. deep, excavated by a trencher. The second group has 12 in. diameter piles of around 10 ft. length, bored by a powered auger mounted on a crawler chassis. The third group was provided with the under-reamed type of pile 4 ft. deep, bored by the Station's machine.

The records obtained on these trials are now being analysed and should give a sound basis for the economic assessment of these three types. At the same time, settlement measurements which are being made on each group should show whether, on each site, there is any substantial difference in performance in this respect. Of these various methods only the short bored pile carried to a depth of 10 ft. or more will afford protection against the drying of shrinkable clays by tree roots, but the other methods, with foundations at a depth of 4 ft. will protect against the effect of drying of the clay down to this level.

The construction of many factory roofs has promoted condensation by using highly conducting, impermeable metal cladding freely exposed to the weather and denied any compensating gain of heat from the interior of the building by a lining of insulating material. This insulating material usually allows easy diffusion of water vapour so that, when vapour pressure of moisture within the building is high, the transfer of moisture into the narrow cavity bounded by the cold cladding can be considerable. The results of the experiments in the roof laboratory, carried out during the winter of 1953-54, on pilot-scale north-lighting factory roofs have now been analysed. The basic roof construction was bitumen-protected metal, insulated with a lining of ¼-in. fibreboard. Modifications included (a) reduction of the vapour diffusance of the lining by two coats of paint, (b) increased ventilation of the cavity from the outside by raising the overlaps of the metal sheets, (c) replacing the metal cladding with corrugated asbestos cement and (d) over-roof insulation.

PAINT TREATMENT

The best results were given by the paint treatment; the gaps round the edges of the boards, however, had been carefully sealed, so that this treatment does not provide a direct solution on the full scale. Increased ventilation of the cavity, whether by the gaps introduced between the metal sheets, or the naturally occurring gaps between the asbestos sheets, gave considerable improvement. The over-roof insulation of ½ in. of fibreboard was barely sufficient to prevent condensation in very cold weather; 1 in. thickness would have been completely successful.

The basic roof construction of metal sheeting and untreated fibreboard insulation showed all the staining and deterioration which are the marks of condensation in practice, so that it may be considered that the first objective of the work, namely to simulate practical conditions on the laboratory scale, has been successful. A further set of remedial treatments, including the use of asbestos spray, are being tested.

During the winter of 1953-54, temperature and heat flow measurements have been made on a type of lightweight prefabricated wall construction which is now arousing interest. It consists essentially of an aluminium alloy frame, with an outer cladding of thin aluminium corrugated sheet and an inner lining of hardboard. Insulation is provided by a 1½-in. thick glass fibre quilt in the cavity. The mean thermal transmittance of an 8-ft. square section of the wall was found to be as high as 0.33 Btu/ft². This "U" value is about twice the manufacturers' computed value; the latter ignored the excessive heat loss through the metal framing to the exterior cladding, which in fact acted as a "cooling fin" for the framing. This is a problem arising in all post and panel constructions, which needs to be dealt with at the design stage.

CONCRETE CONVEYORS

Tests have been in progress with a German high-speed elevating belt conveyor for the transport of concrete. It is known that this method of transporting concrete is used fairly extensively in Continental countries in conjunction with both continuous and batch mixers. This particular machine was acquired in order to investigate the possibilities of developing a similar technique in this country, more particularly in conjunction with a continuous concrete mixer. The elevator is

shown in Fig. 1 used in conjunction with a 10/7 batch type mixer. When used with this type of mixer, the full 7 cu. ft. discharge can be poured without interruption straight on to the belt, thus imposing no restriction on the operating rate of the mixer.

This mixer weighs 28 cwt., has an overall length of 50 ft., and will elevate to a maximum height of 21 ft. The belt is 17½ in. wide and runs at a speed of approximately 265 ft. per min. At its maximum angle of elevation, 27 degrees, it will handle concrete of low workability, but at this angle some segregation may occur if the water/cement ratio is greater than 0.5. It would appear that conveyors, in common with concrete pumps, show to best advantage when handling high quality concrete and working at their maximum capacity.

The study of this method of handling concrete is continuing, more particularly in connection with lightweight portable high-speed belt conveyors.

In order to investigate the performance of the light continuous concrete mixers that have come into fairly extensive use in Germany during the last few years, the Station acquired a German machine. (Fig. 2.) This mixer, which has been under test for several months, has in relation to its size and price the remarkably high output of about 14.5 cu. yd. of concrete per hour when working at its maximum speed. The tests have shown that the machine will produce a well-mixed concrete and will mix with ease, without segregation, concrete having a low water/cement ratio. It will also satisfactorily mix no-fines concrete. The accuracy with which it will batch aggregates appears to be approximately equal to that obtained by volume control with a batch type mixer. The flow of mixing water, which is fed from a constant-head tank, can be closely controlled by the operator; in this respect the mixer is superior to conventional small mixers.

The most unsatisfactory feature of the machine tested is the means employed for feeding the cement, which results in inaccurate and unpredictable proportioning. Consequently the concrete is not sufficiently controlled to be acceptable for structural work.

TROPICAL BUILDINGS

The study of the effect of construction on the temperatures attained during the summer in the experimental buildings at Kuwait, mentioned in last year's report, has been completed. It was found that the temperatures of external surfaces could be calculated in terms of the orientation of walls, the thermal properties of the materials and the surface treatments affecting the absorptivity of the solar radiation. It was also possible to calculate the internal temperatures resulting from the observed external surface temperatures, again in terms of the thermal properties of the construction. This has provided data for estimating the cooling load in air-conditioned buildings and for assessing the relative benefits of reducing solar gain by shading or by using light-coloured external surface finishes, and of alternative methods of construction. Similar estimates can be made for buildings where there is a constant ventilation rate.

Measurements were also made of the cooling that could be effected by providing copious ventilation at night and restricting it during the day. It was found that this routine reduced the air temperatures in the buildings by as much as 10 deg. F. in the mornings, and that the effect persisted well into the afternoon, with a benefit of 5 deg. F. still being realised in the late afternoon. For maximum cooling with this method, the aim in construction should be to have within the building a high thermal capacity which can provide storage for night cooling, and to minimise the entry of heat through walls and roof. The latter can be achieved by insulation, but the introduction of thermal capacity can also help to reduce the peak rates of inward heat flow.

The conditions on which improvement grants for old houses may be made by local authorities are drawing attention to various problems of repair work. Dampness lies at the root of most instances of deterioration in buildings, and many of the houses likely to be considered for improvement were built before it became compulsory to provide a damp-proof course at ground level. Insertion of a normal damp-proof course into an existing wall is difficult and expensive. The Station is exploring possible ways of facilitating this operation, for instance by using a special cutting tool, but alternative types of treatment are also receiving attention. Assessments of a method proposed to enhance the degree of evaporation of moisture from the base of a damp wall were not encouraging, but inquiries are being made on the experience of local authorities and others using the system.

Trials have also been organised in collaboration with a local authority to examine the effect in sub-standard houses of this and of another system that seeks to prevent the capillary rise of moisture in the wall by electrical means. Other similar trials are being directed to an examination of the potentialities of methods of impregnating walls with various substances. Tests to assess the efficiency of the electrical method referred to are also being made on behalf of the proprietors of the system. Difficulties that have arisen in the course of experiments designed to that end have shown that lime-cement mortars offer a surprisingly high resistance to the capillary rise of moisture in brickwork—so much so that new walls have had to be built in lime mortar for the evaluation of the system in question.

DAMAGE FROM RUST

Problems relating to the use of metals in building often arise because of failure to appreciate that faulty detail can lead to corrosion, and inadequate knowledge of the materials used.

In recent years, failure of copper tubing has occurred in district heating schemes in which, to provide thermal insulation, the pipes have been embedded in a foamed cement concrete. Failures by longitudinal

Fig. 1. High-speed elevator for transporting concrete.

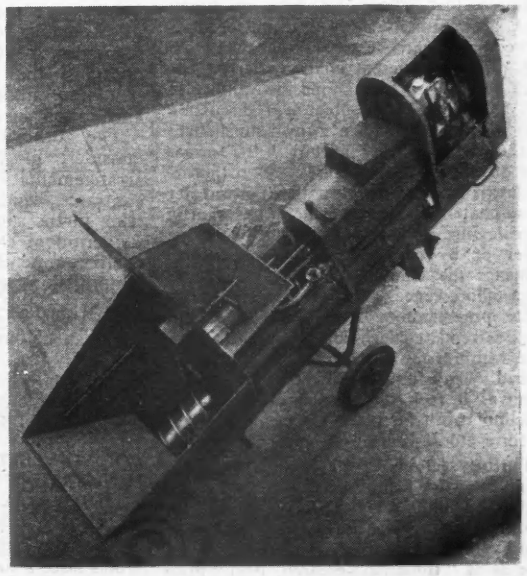


Fig. 2. Small continuous concrete mixer.

cracking have also been referred to the Station. The cause appears to be stress corrosion due to a combination of residual stress in the pipe, the use of a foaming agent which releases a small amount of ammonia on mixing with Portland cement, and the use of copper containing a very small amount of phosphorus.

Investigation of some recent failures has thrown light on the longitudinal cracking that occurs from time to time in cast iron rainwater pipes. On two six-storey blocks of flats, every 6-ft. length in some 400 ft. of 4-in. piping, carrying water from a copper sheet roof, cracked within four to five years. The pipes, which complied as regards thickness with the light quality specified in British Standard 460:1944 were found to be uniformly corroded inside to a depth of about 1/16th to 1/10th in. On removing the rust the crack closed completely, indicating that cracking was caused by the expansive stress set up by the formation of the rust layer. Rusting is likely to have been accelerated by the deposition on the inside of the pipe of copper dissolved from the copper roofing by rainwater. Adequate protection of the inside of iron pipes, desirable in most circumstances arising in practice, is essential when such pipes carry water from copper roofs.

Porous limestone treated with a preparation containing a silicone resin and exposed out-of-doors has retained a considerable measure of water repellence over a period of 16 months and is less discoloured than similar untreated material. But this does not imply that silicone resins can be safely and effectively used as stone preservatives. Indeed, one case has already come to notice in which a small trial on stone of poor durability in an old building has been followed by scaling of the treated surface within 18 months. With these and all other stone preservative treatments prospective users carry out comparative trials.

EFFLORESCENCE

Although investigation has failed to support a suggestion made by a Continental authority that efflorescent salts on brickwork are normally derived from reactions between bricks and cements rather than from salts originally present in the materials, the work carried out to examine the validity of this hypothesis, and subsequent discussion with its originator, have thrown much light on the part played by mortars in the formation of efflorescence on brickwork. In particular, it has become clear that the transfer of sulphates from mortar to bricks shortly after laying, either by absorption of mixing water or by percolating rain water, may influence the amount of salts available to form efflorescence. This is because the sulphate present in a freshly mixed cement paste is rendered insoluble as sulpho-aluminate within a few hours if it remains undisturbed. Transfer into the pores of a brick removes it from the region in which this reaction can take place and leaves it free to form efflorescence.

Further sections of the Report outline in detail the work being carried out on the properties of building materials, the design and performance of structures, soil mechanics, and Colonial housing and building research. Copies of "Building Research, 1954," price 4s., may be obtained from the Stationery Office.

RESTRICTIVE PRACTICES IN BUILDING

Implementing the Recommendations of the Monopolies Commission

THE Ministry of Housing and Local Government have issued a circular (No. 32/55) to housing authorities and county councils (for information) in England on the implementation of the recommendations of the Monopolies Commission regarding restrictive practices in the building industry. Following is the text of the circular:—

BUILDING INDUSTRY RESTRICTIVE PRACTICES

SIR,—I am directed by the Minister of Housing and Local Government to refer to the statement made in the House of Commons on December 21, 1954, by the Minister of Works about the Report of the Monopolies Commission on the supply of buildings in the Greater London Area.

The Minister of Works said that in future firms would not be included in any list of approved Government contractors for new buildings if, in tendering for such work, they followed practices criticised by the Commission. The firms already on the list would be asked to confirm that they wished to remain there and accepted this condition.

The Monopolies Commission recommend that there should be discussion between the appropriate Government Departments and the representative bodies of local authorities about the method by which the arrangements criticised in the Report should be brought to an end. When this discussion was held, it was the view of the local authorities' representatives that local authorities generally should have brought to their notice the action being taken by Government Departments in this matter.

Copies of the letter being sent to all contractors on the Government lists and of the form of reply to be made by contractors are therefore given overleaf in the Appendix to this circular, for the information of your Authority. It will be observed that the statement required from contractors is to be given once only and not on the occasion of each contract.

The authority will doubtless wish to consider, in the light of their own arrangements for dealing with building contracts, what action they can usefully take, in the same spirit as that taken by Government Departments, to implement the recommendations of the Monopolies Commission.

I am, Sir,
Your obedient Servant,
S. W. C. PHILLIPS,
Under Secretary.

The Clerk of the Authority,

COPY OF LETTER BEING SENT BY THE MINISTRY OF WORKS TO ALL CONTRACTORS ON THE GOVERNMENT LISTS

"Dear Sirs,

On December 21, 1954, the Minister of Works made a statement in the House of Commons on the Report of the Monopolies and Restrictive Practices Commission on the Supply of Buildings in the Greater London Area. The Commission were asked to report on the following practices:—

(*a*) Communicating to a person other than the person calling for tenders for the construction of a building the amount of any proposed tender for such construction in accordance with any agreement or arrangement so to communicate;

(*b*) adjusting the amount of any proposed tender for the construction of a building in accordance with any agreement or arrangement between the proposed tenderer and any person other than the person calling for tenders or such construction.

2. The Commission came to the conclusion that arrangements of which these practices form an integral part have no such beneficial effect as would justify either practice and that both are against the public interest. The Commission recommended that they should be brought to an end.

3. The Minister has received assurances from the London Builders' Conference that the practices in the London Area have now been abandoned by their members and he fully accepts these assurances. Similar practices have been followed to some extent outside London and the Government takes the view that these also should be given up.

4. Accordingly, in future firms will not be included on any list of approved Government contractors for new buildings if in tendering for such work they follow either of the practices described. As the name of your firm already appears on one or more such lists, I am to ask you to be good enough to confirm that you wish it to remain there and that you accept this condition.

5. For your convenience I enclose a prepaid form for reply.

Yours faithfully,
(Sgd.) H. EMMERSON."

COPY OF FORM OF REPLY TO BE MADE BY CONTRACTORS

"Dear Sir,

In reply to your letter of....., 1955, we have noted the condition which will in future apply for inclusion on any lists of approved Government contractors for new buildings. We hereby confirm that we wish to remain on such lists and accept this condition.

Yours faithfully,
Signed.....
in the capacity of ....."
.....195

From .....
.....
.....

Steel Frames Reference to Monopolies Commission

THE SUBJECT of steel frames for buildings is to be referred to the Monopolies Commission. This was stated on May 13 by MR. PETER THORNEYCROFT, President of the Board of Trade, in a speech at Chepstow.

PUBLICATION OF TENDER PRICES

Peterborough Corporation has decided, in response to an inquiry by the local Building Trades Employers' Association, that it will tell unsuccessful tenderers the price of the successful tender in Council contracts, but not the price of other tenders. But Northampton Corporation has recommended (in response to a similar inquiry) that it will supply prices of any tenders over £2,000 to the contractors concerned, to the Northampton Association of Building Trades Employers, and also to trade journals.

TOWARDS HIGHER PRODUCTIVITY

5.—Improved Methods of Wall Construction

By R. ROSNER, ARIBA, AMTPI

1.—SOME CONTINENTAL PRACTICES

IN many countries attempts are being made to speed the construction of walls. Rationalisation may be achieved by carefully prepared site organisation or the use of wall units, different in size and shape from normal bricks. So far as the use of standard bricks is concerned, the tendency is to relieve the bricklayer of all secondary operations. Bricks and mortar should be constantly within easy reach; the architect must design to dimensions which will assure the minimum of cutting.

It may be worth mentioning a few practices in various Continental countries.

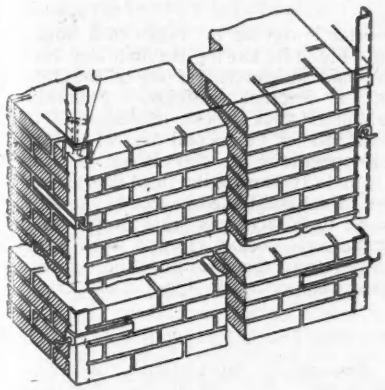


Fig. 1.—Corner and coursing jig for rationalised bricklaying (Soviet Union).

Scaffolds in Austria have 5 ft. 4 in. wide runways. In Russia, 8 ft. runways are divided into three zones, a 2 ft. wide working zone, a 2 ft. wide zone for circulation and transport and a 4 ft. wide zone for the stacking of materials. In Denmark a 16-in.-wide board at a height of 4 ft. 4 in. runs the whole length of the scaffolding. Here the labourer stacks the bricks for the bricklayer, who need not stoop to pick them up.

In Holland corners of buildings are set out with light timber jigs with courses marked on. Metal jigs are widely used in the Soviet Union, Poland and Eastern Germany (Fig. 1). The Austrians use instead of trowels so-called "pans" which, with a capacity of 1.5 litres, can lay a mortar bed for 6 to 8 bricks in one run: two bricks are pressed diagonally into position so that the mortar squeezes into the perpends. Similar methods are employed in Russia and Poland (Fig. 2). Labourers attend to the stacking of bricks and spreading of mortar (Figs. 3 & 5C). The bricklayer uses two laying techniques: one or two bricks are held at an angle and pushed with the lowest edge scooping up the bedding mortar over a distance of 2 in. to 3 in., so filling the perpends (Fig. 4). Alternatively, a trowel is used to scoop up mortar against the brick laid last, the next brick is pressed vertically into position and the surplus mortar removed (Fig. 5A-B).

In the Russian zone of Germany these methods have been widely adopted. During experiments a daily output of 3,600 to 5,600 bricks per team, or 1,600 to 1,900 bricks per head was reached. Such feats, if exceptional, were soon practically applied. In 1951 a production drive, the "Tausender Bewegung" (Operation Thousand), was initiated in the Eastern zone with the aim of achieving the daily laying of 1,000 bricks per bricklayer and other operatives of a team. As a team of two was expected to lay 3,000 bricks, obviously allowance was made for auxiliary workers, e.g., carriers. Thus output rose 75 per cent. above the daily average of 850 bricks.

2.—RATIONALISED BRICKLAYING IN THE SOVIET UNION

(a) *The team.*—A group of bricklayers usually consists of 7 to 10 teams. There are two to three operatives in a team. The smallest team, a skilled bricklayer and his mate, works on walls of up to 14 in. thick. For thicker walls teams of three operatives are more suitable, i.e., one bricklayer and two mates (Fig. 5C). The output of each team is assessed individually. Quantity as well as quality (e.g., by-law requirements) are regularly recorded on output charts which are placed in prominent positions in order to encourage competition and a sense of responsibility; 33 to 50 ft. is regarded as a manageable sector length for one team. This should make it possible to brick up to a height of 3 ft. 9 in. without auxiliary trestles and 5 ft. 6 in. with scaffolds.

Fig. 2.—Placing of bedding mortar with a shovel.

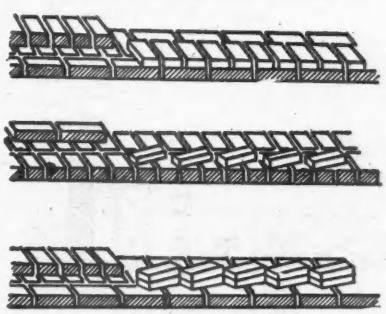


Fig. 3.—Bricks laid ready for use by the labourer.

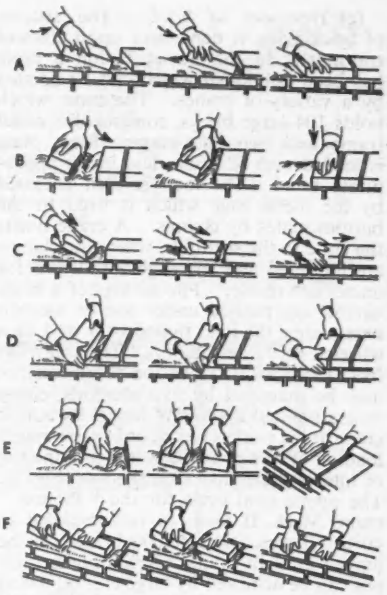


Fig. 4.—A-D. Fast laying of bricks without trowel. E-F. A very skilled worker can lay two bricks simultaneously.

(b) *The group leader.*—The group leader works in one team and at the same time periodically supervises his group. He usually arrives on site an hour before work starts in order to check preparations.

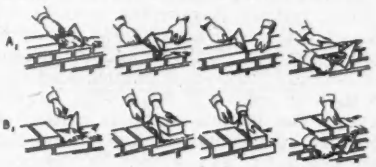


Fig. 5.—A-B. Fast laying of bricks with trowel.

Towards the end of the shift he makes certain that all available mortar is used up. In the case of unforeseen delays, e.g., the breakdown of mechanised plant, he organises a supplementary shift, drawing on selected teams which work on a rota system. Members of these teams are compensated by appropriate overtime payments or special leave.

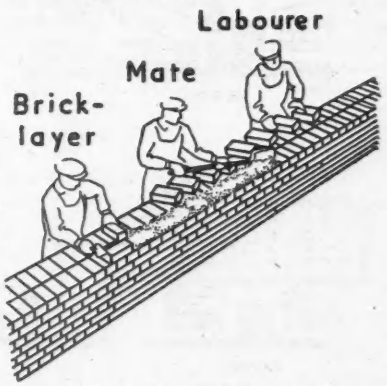


Fig. 5C.—Team of three, bricklaying from right to left. The bricklayer follows behind mate and labourer.

(c) *Transport of bricks.*—The success of bricklaying is dependent upon efficient transport. In the Soviet Union a crate has been developed which can be hoisted by a variety of cranes. The crate, which holds 104 large bricks, consists of a metal frame and two base-plates. Each plate is loaded with 52 bricks laid in the appropriate bond. The load is then enclosed by the metal cage which is fixed to the bottom plates by clamps. A crane hoists the crate to the scaffolds, where the clamps are loosened and the cage withdrawn for immediate re-use. Two prongs of a brick barrow are pushed under one of the two base-plates, the load tipped back and then wheeled to its destination. The transport from the brickworks to the superstructure may be managed by two methods, either by crating and loading of lorries by a light crane at the works (Fig. 6) or by the manual loading of lorries at the works and the use of intermediate stacks on the site (Fig. 7). The operational cycle for the "Pioneer" crane Mark II (Fig. 8) is completed in 40 to 60 secs.; thus 40,000 bricks can be moved in eight hours. Much higher output can be achieved by large cranes, which can lift four crates simultaneously (Fig. 9).

(*d*) *The transport of mortar.*—The transport of mortar is also rationalised; a special type of wheelbarrow is run under a mortar container (Fig. 10); a lever-operated frame is then jacked-up, lifting the container off the ground, ready to be wheeled to its destination (Fig. 11).

(*e*) *Bricklaying without external scaffolds.*—This method is generally used in the Soviet Union and increasingly applied in other countries. Walls are laid with the aid of auxiliary trestles and internal scaffolds, 5 ft. 8 in. and 8 ft. 6 in. high, respectively. The internal scaffolds consist of boarded platforms resting on tubular supports at 6 ft. 4 in. centres. The sequence of bricklaying is as follows:

(i) From the floor level the wall is built up to a height of 2 ft. 6 in. to 3 ft. 3 in.

(ii) Work is continued on trestles to a height of 5 ft. 8 in. (Fig. 12).

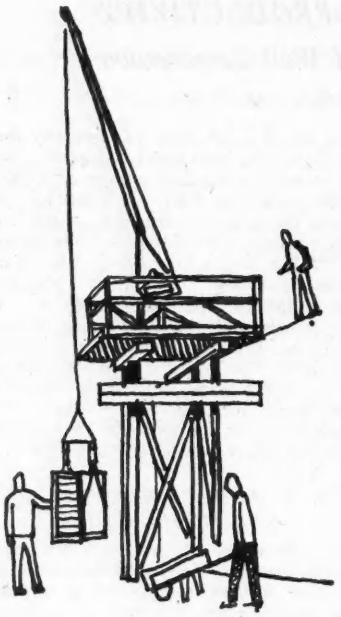


Fig. 8.—Pioneer crane mounted on timber scaffold, lifting brick crate.

(iii) After placing of the internal scaffolds the wall is raised to a height of 8 ft. 6 in. to 9 ft. and finally

(iv) The trestles are positioned on the scaffolds so that the walls may be taken to their full-storey height. Upon the placing of the floors the cycle is repeated. (It should be noted that average room heights in the Soviet Union and in other Continental countries are in excess of our own, hence the necessity for phase (*d*) (Fig. 12A).)

(*f*) *Bricklaying in sectors.*—The superstructure is divided into several sectors and work is started at the flank walls and continued towards the centre where

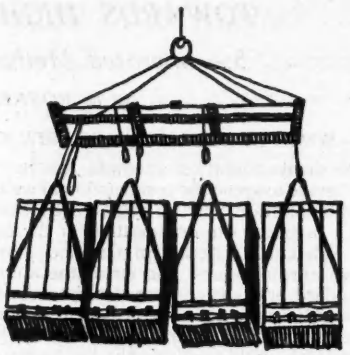


Fig. 9.—Arrangement for large tower crane capable of carrying four brick crates simultaneously. Each crate has two base plates.

mortar is run up by means of a hoist or lift (Fig. 13). During the first day bricks are laid in sectors (1) up to the height of the internal scaffolds. Meanwhile, labourers stack bricks in sectors (2) in readiness for the second day, when identical operations are carried out in sectors (2) and (3). During the third day the walls are raised and linked in sectors (3). At the same time labourers store bricks on the scaffolds in sectors (1) and work is continued from there towards the centres as described previously (Figs. 14 and 15).

3.—*THE USE OF LARGE WALL UNITS*

Research by the Institute "Bauen and Wohnen" has established that 2,400 manual operations are necessary and that 400 separate distances have to be walked, partly with a load, partly without, to lay 1m³ of brickwork (400 German standard bricks). If one considers that during one minor operation only 7.7 lb. of bricks

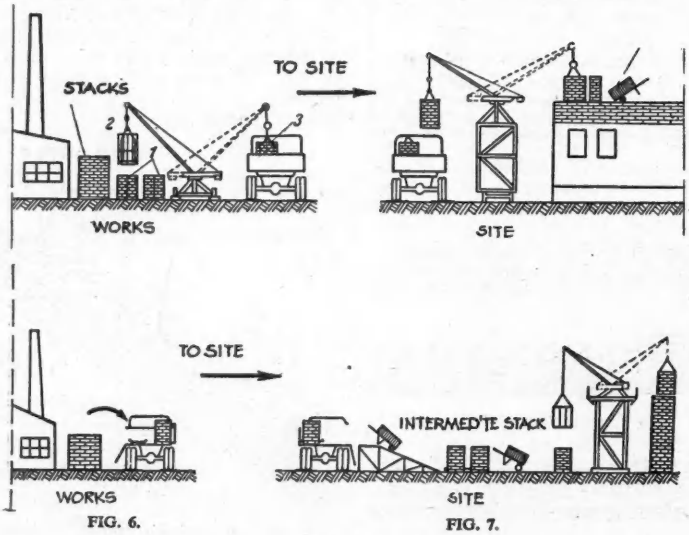


FIG. 6. FIG. 7.

Figs. 6 and 7.—Transport of bricks, either by using a light crane (above) or by manual loading at the works and intermediate stacks on site (below).

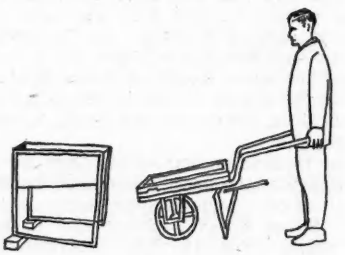


FIG. 10.

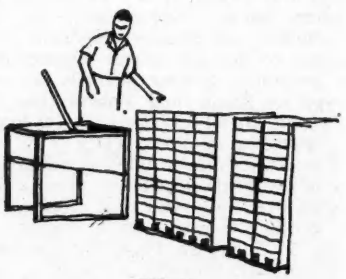


FIG. 11.

Fig. 10.—Russian mortar container with barrow. Fig. 11.—Mortar container next to bricks on base plates.

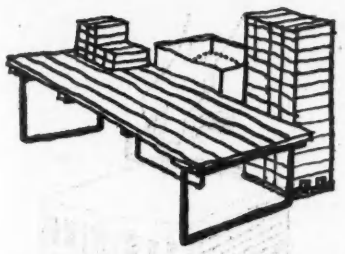


Fig. 12.—Auxiliary trestles for bricklaying.

and 3.3 lb. of mortar are moved, it seems clear that by bending down and walking to and fro, a man weighing about 10½ stones is making inadequate use of his potentialities. He can achieve higher output by laying wall units larger than bricks.

During the last 30 years numerous types of units have been developed and well tried in several countries including Sweden, Norway and Switzerland. Germany has substantially advanced application of this important aspect of building technique (Fig. 16). The wall units so far developed may be classified under several headings:

(1) (*a*) Hollow clay wall blocks.

(*b*) Light-weight concrete blocks.

Until recently many blocks were made of rubble concrete, i.e., with an aggregate of brick rubble from destroyed buildings; this supply is now nearing exhaustion. There is, however, no reason why the manufacturers of bricks could not continue to produce a similar aggregate, for these blocks have excellent qualities, e.g., a high degree of fire resistance. In the Rhine Valley pumice concrete blocks have been used extensively for the last 20 years; in other parts of the country, where distance from the pumice fields of the Central Rhine makes the use of these blocks uneconomical, other load-bearing light-weight products, sometimes of Scandinavian origin, enjoy increasing popularity. The essential aggregate may consist of expanded shale, slate or crushed quartzite.

(2) (*a*) Long-hole units, if perforations run horizontally and parallel with the face of the stretcher.

(*b*) Short-hole units, if perforations run vertically.

(3) (*a*) One-hand units, if an operative can lift them with one hand.

(*b*) Two-hand units, if an operative requires both hands.

A perforated brick of dimension equal to that of a standard solid brick permits an increase in output of 10 per cent. If its volume is increased the most economic size is reached with a length of 10 in., width of 4⅞ in., and a height of about 4 in. Output per cubic metre will then be 33 per cent. faster than that for normal bricks (Fig. 17). This, in fact, is the critical size for one-hand units, for if dimensions increase further, output declines. The weight of the 10 in. by 4⅞ in. by 4 in. perforated brick is equal to that of a solid standard brick.

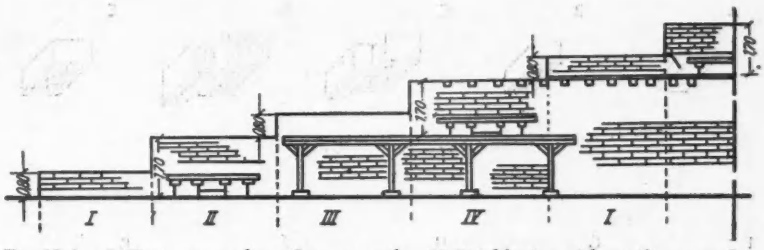


Fig. 12A.—I. First courses from floor upwards. II. Bricklaying with auxiliary trestles. III. Bricklaying with internal scaffold. IV. Auxiliary trestles on internal scaffold.

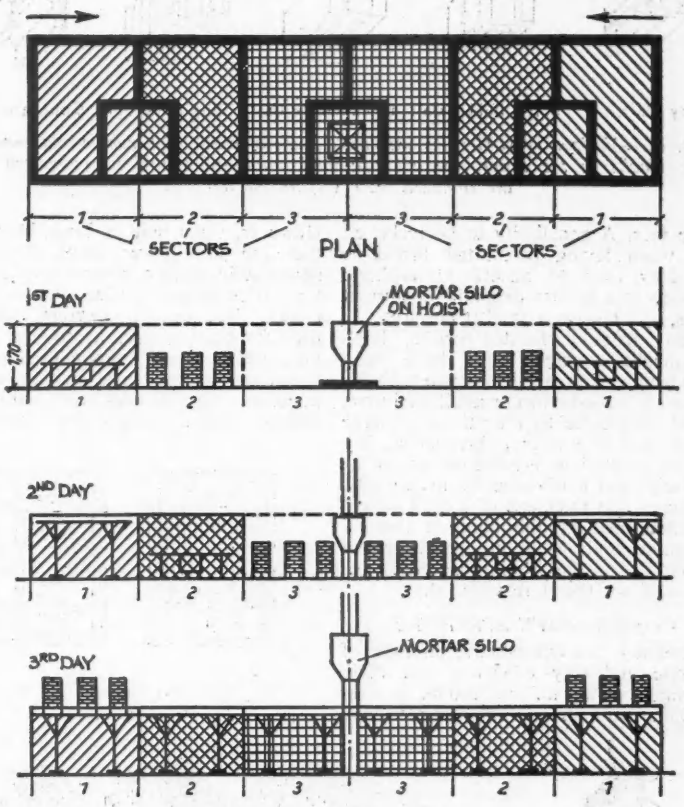


Fig. 13.—The phasing of bricklaying.

In Switzerland, where with the exception of work of stacks and basements perforated bricks are used widely, maximum dimensions may be as large as 10 in. by 10 in. by 5 in. to 6 in. (Fig. 18). These units can still be used with one hand with the aid of a special grip tool (Fig. 19), which enables the fist to be held exactly above the brick's centre of gravity. A high daily output can be achieved. The pattern of perforations varies, depending on the type of clay used If the heat insulating capacity of a 10-in.-wide unit should prove to be inadequate, aerated clay units are laid against the

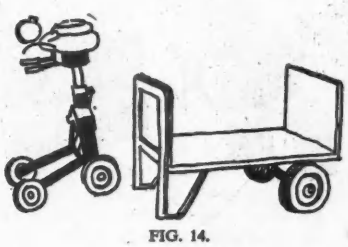


FIG. 14.

FIG. 15.

Fig. 14.—Petrol-coolie for brick stills (Eastern Germany). Fig. 15.—The petrol-coolie in action. It can move stills with load capacities of 120, 180 and 240 bricks, is equipped with a 4-h.p. motor and can be fitted with a driver's seat.

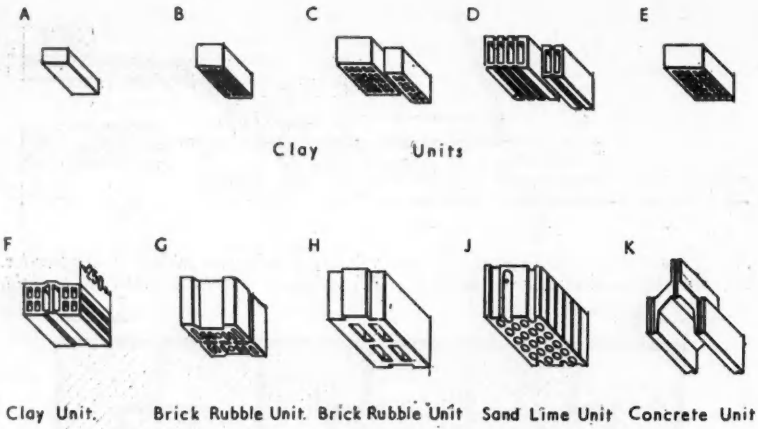


Fig. 16.—Various West German wall units made of clay, brick rubble and concrete. The blocks in the lower row are two-hand units and should be compared with the standard brick (A) on the top left.

inside face. A peculiarity to be reckoned with when laying perforated bricks is that they tend to absorb atmospheric moisture to a greater degree than normal bricks, which have a smaller surface.

Apart from perforated bricks, large light-weight concrete units have been developed which make it possible to build, with no increased effort or additional time, a wall area three to four times as large as that built with ordinary bricks (Fig. 20). German technicians feel that because of the relatively light loads required in domestic structures, the thickness of a wall should be determined by the required thermal insulation. Solid walls are generally not utilised up to the maximum permissible load and are therefore wasteful.

COMPRESSIVE STRENGTH

Generally the compressive strength of concrete and clay blocks is not high, varying from 350 lb. and 700 lb. to over 1,000 lb. per sq. in. in special cases. However, walls built in large blocks and therefore with fewer joints develop an appreciably higher compressive strength than those consisting of small units such as bricks. The pumice concrete blocks are used for bearing walls up to four storeys high and in Bonn I saw a three-pronged five-storey point block built with this material. The Swedes use light-weight blocks with a compressive strength of

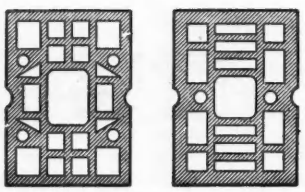


Fig. 18.—Perforated clay blocks (Switzerland).

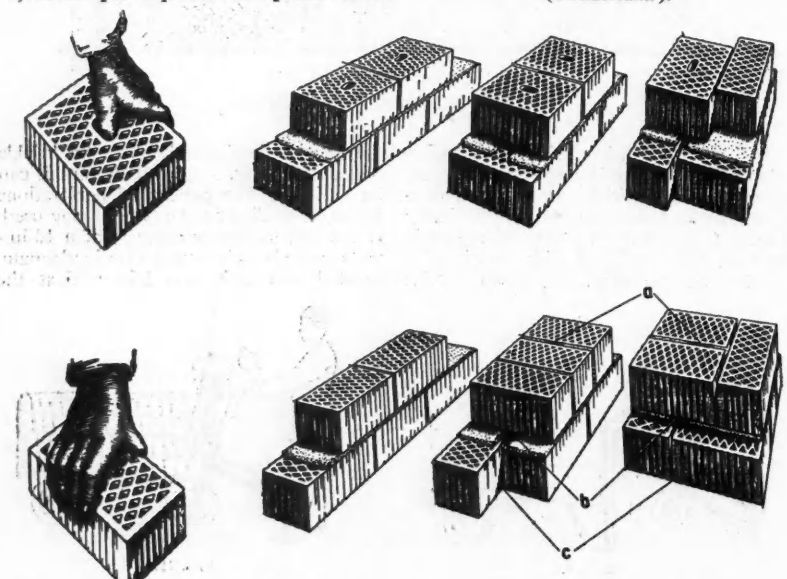


Fig. 17.—Perforated clay units with and without thumb holes. Points a, b and c indicate how the continuity of the mortar has been broken with the latter.

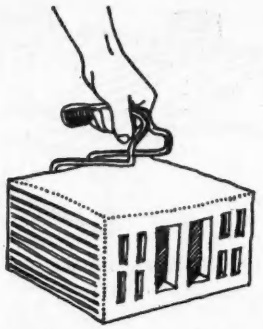


Fig. 19.—Large one-hand block with special grip tool.

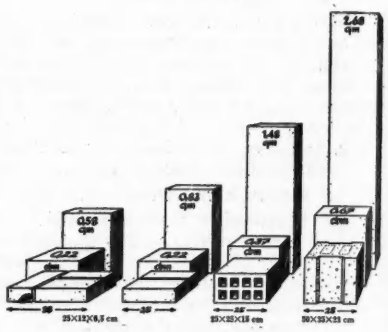


Fig. 20.—Comparative output using various types of wall units. On the left is the output for two walls in normal brickwork, on the right, two walls in perforated light-weight units.

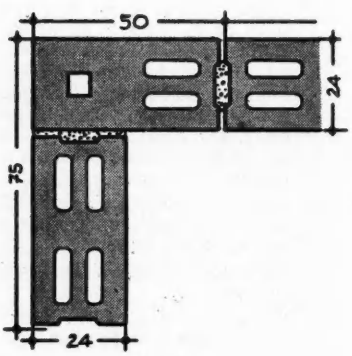


FIG. 21.

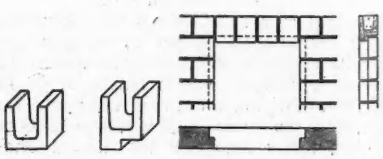


FIG. 22.

Fig. 21.—Corner detail for block construction. Fig. 22.—Pumice concrete units for openings.

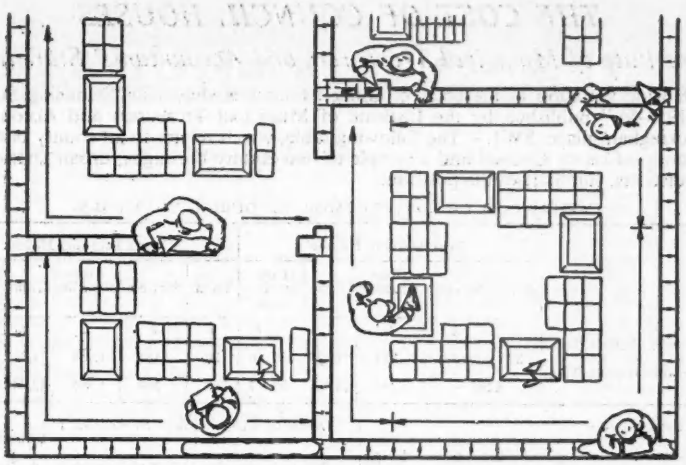
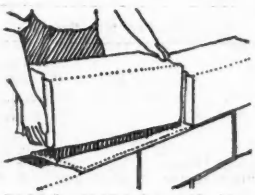
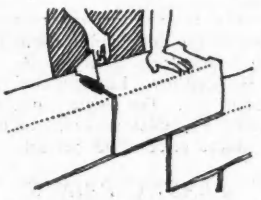


Fig. 23.—The distribution of operatives and materials during the erection of block walls.





Figs. 24 and 25.—The placing of a two-hand block; followed by the filling of the perpends.

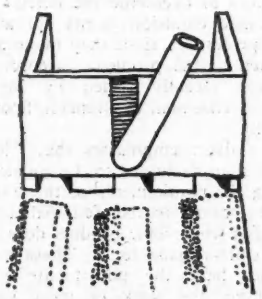


FIG. 26.

FIG. 27.

Fig. 26.—Sledge for bedding mortar.
Fig. 27.—The sledge in use.

850 lb. per sq. in for many of their five-storey buildings. The lower walls are 14 in. thick and the upper ones 10 in. Their respective U-values, after the application of external rendering, are 0.09 and 0.12 and therefore appreciably better than the value for 11 in. cavity walls (0.3). The control of moisture movement has also been highly developed. With products containing cement, lime and an addition of crushed quartzite, steam-hardening not only eliminates initial shrinkages but also assures high compressive strength and low comparative weight.

Ten-inch-thick walls of perforated bricks or hollow blocks can be used far more economically and with higher standards of insulation than solid walls, one stretcher or 1½ stretchers thick. The combined labour required for such units, i.e., not only for placing but also for manufacture and transport, may be as much as 35 per cent. below the combined labour required for normal bricks.

The laying of perforated bricks and blocks has peculiarities of its own. They are not cut to form junctions, quoins and reveals of openings, for this would involve an extra one or two hours per cubic metre of wall. Special units are used and details must therefore be planned in advance. The variety of these units is kept to a minimum (Fig. 21). Openings are either formed by pre-cast reinforced concrete units faced with insulating aggregate, or U-shaped lightweight units placed in position and a reinforced core cast *in situ* (Fig. 22). In plan, blocks are laid to a module of 0.25m. (i.e. 10 in.), in coursing, again on a module of 0.25m. or 18.7cm., 16 courses of which are just 8 mm. below 3m. (10 ft.). Many German standards, particularly those developed for various kinds of wall construction, are based on a metric module.

For the formation of flues either ordinary bricks or special self-contained concrete units must be used. A pilot team lays the lowest course strictly according to the grid dimensions outlined on a special drawing which has to include plan, sections and partial elevations. Cross-walls are bonded with external walls as

Fig. 28.—Placing of bedding mortar with a mechanical device (West Germany).

the work proceeds and teams work best from one end of a block to the other.

Blocks should not be stacked higher than 4 ft. 3 in., neither should operatives work at levels higher than that. Manual transport of blocks is impractical. On a level surface they are usually carried in parcels of up to 12 on two-wheel trucks similar to those used by our railway porters; where surfaces are even, fork-lift trucks may be used. For heights above two storeys, light tower cranes are most effective; the blocks are again transported in parcels with a protective wooden sledge at the bottom end.

SERIAL LAYING

Hollow blocks are particularly suitable for serial laying; in order to avoid overlapping, operatives must work at adequate distances from each other (Fig. 23); the bedding mortar is spread over the whole length of a wall, then the blocks are packed and pressed in position. The perpends are filled in afterwards (Figs. 24 and 25). The faces of headers are preferably concave in shape; first, this permits easier lifting in the case of two-hand blocks with a maximum weight of between 44 and 55 lb.; secondly, when blocks are laid end to end, the perpends are wider and therefore more easily filled. The filling of perpends and laying of bedding mortar and pointing can be hastened with special mortar sledges (Figs. 26 and 27), or by mechanical means (Figs. 28 and 29). Skilled workers in a team should number

Fig. 29.—Mechanical pointing equipment (West Germany). Pressure is provided by air containers which are refilled by an attached foot pump.

from 4 to 7. The total number of workers depends on materials and transport facilities. Transport times vary according to equipment used; 0.5 to 1.2 hours per cub. m. for light tower cranes, 0.8 to 1.4 hours per cub. m. for special trolleys and up to 2.5 hours for manual transport.

The advantages of the various load-bearing blocks over the standard brick may be summarised as follows:—

(a) Lighter weight per cube foot.
(b) Increased heat and sound insulation.
(c) Simplified and speedier manufacture, transport and site operations.

Their disadvantages :—

(a) Complications when corners, piers and chimney-stacks are formed.
(b) Reduced compressive strength.
(c) Possible strain on the operatives.

MOISTURE PENETRATION

An extensive use of large wall units could be a positive factor in our present attempts to reduce the high cost of building. The advances made in this direction by several Continental countries cannot be ignored in the long run. No doubt this would involve a revision of many of our building regulations. There remains the problem of protecting block-walls against the penetration of moisture. On the Continent many renderings based on cement-lime mixes have been developed. Often, an integral waterproofer, is incorporated in the undercoat; in spite of their porosity these finishes effectively reduce the penetration of moisture. The skill and energy used in applying the mortar is considerable; instead of being spread on by trowel, it is flicked on. Whether this technique could supersede our established methods is open to question. Mechanical rendering, already described, may be the solution. A variety of textures may be obtained, including aggregates of varying coarseness, even pebbled. Scraping with saws or special tools makes further refinements possible.

Many of these renderings would hardly be suitable for a country with large areas of heavy atmospheric pollution. Roughcast and pebble-dash finishes should be, however, satisfactory in Britain's suburban and rural areas. The use of pebble-dash has not yet been fully explored; careful selection of the grades and colours of pebbles would appreciably widen the extent of finishes so far available.

Also of interest to us is the current development of specially surfaced load-bearing lightweight units. Precautions must be taken to prevent the penetration of moisture through the joints; this requires an appropriate arrangement of perforations within the blocks or the creation of barriers by separating the bedding mortar into strips. Alternatively, the interlocking of blocks by means of tongue and groove is most effective.

(*Concluded*)

PARTY WALLS

"Modern Party Wall Problems" is the subject to be dealt with by Mr. E. R. Fisher, DCM, MIStructE, in a talk to the Institute of Clerks of Works at 66, Portland-place, W1, on June 8 at 6.30 p.m.

THE COST OF COUNCIL HOUSES

Institute of Municipal Treasurers and Accountants' Statistics

THE wide variation in the costs of council houses is shown in "Housing Statistics 1953-54," published by the Institute of Municipal Treasurers and Accountants, 1, Buckingham-place, SW1. The following table, which relates to all county boroughs, the London County Council and a sample of non-county boroughs, urban districts and rural districts, summarises the position.

CAPITAL COST OF HOUSES COMPLETED DURING YEAR 1953-54

	Two Bedroom Houses					Three Bedroom Houses				
	Land	Services	Construction	Total	Cost per foot super	Land	Services	Construction	Total	Cost per foot super
	£	£	£	£	s. d.	£	£	£	£	s. d.
Houses with Lowest Total Cost	22	139	973	*1,134	35 10	20	145	1,150	†1,315	29 9
Houses with Highest Total Cost	£245		1,746	‡1,991	39 7	245	300	1,895	§2,440	39 0

TOTAL RATE SUBSIDY PER DWELLING	£ s.
Average	5 2
Lowest	Cr. 1 5
Highest	26 2

AVERAGE CONTRIBUTION TO REPAIRS FUND	Lowest £ s.	Highest £ s.
Houses completed 31.3.45 and before	4 0	25 4
Houses completed 31.3.45 to 31.3.54	4 0	23 4
Houses most recently completed at 31.3.54	6 0	21 11

WEEKLY NET RENTS CHARGED AT MARCH 31, 1954

AVERAGE NET RENTS	Completed 31.3.45 and before		Completed after 31.3.45	
	Lowest	Highest	Lowest	Highest
	s. d.	s. d.	s. d.	s. d.
2 Bedroom Houses ...	4 11	17 9	10 3	35 6
3 Bedroom Houses ...	6 7	22 7	11 1	37 4

RANGE OF NET RENTS	Completed after 31.3.45	
	Lowest	Highest
	s. d.	s. d.
2 Bedroom Houses	6 8	35 6
3 Bedroom Houses	7 8	56 7

* Built at Stanley, Durham.
‡ Built at Wimbledon.
† Built at Ellesmere Port, Cheshire.
§ Built at Wembley.

ELECTRICITY IN SMALL HOUSES

ECA's New Standard Specifications

THE Electrical Contractors Association (Incorporated) have drawn attention to the need for more concise specifications in the wiring of small houses, and have prepared standard specifications for this purpose.

In a letter to members, the Association state that for some time the Council has been perturbed by the inadequacy of specifications issued by persons without technical knowledge of the electrical industry, particularly so far as small houses are concerned. The wording of specifications, the letter continues, very often permits considerable latitude in interpretation and is often a contributory cause of the vast difference in the estimates which are submitted.

With this in mind, the Association has prepared standard specifications for use with houses whose floor area does not exceed 1,500 sq. ft. where either tough rubber sheathed cable; light gauge conduit; or heavy gauge screwed conduit is to be used. For the guidance of architects, surveyors and others, some "Introductory Notes" have also been prepared to emphasise a number of points to which special attention should be given when planning an electrical installation in a small dwelling.

The specifications are so printed that the wide margin on the left-hand side enables them to be bound with other tender documents. Any mention of the Association has been deliberately omitted from the specifications so that a professional man will not feel that he is engaged in advertising a trade association.

Copies of the four publications may be purchased, post-free, from the Association at 14, Bedford-row, London, WC1, either singly or in sets. For single copies the cost is 6d. each. Complete sets may be obtained at the reduced price of 9d. per set.

PLASTIC PAINTS

Makeshift Remedies Refuted

THE MAKESHIFT REMEDIES suggested to decorators to overcome the defects of certain plastic emulsion paints are an insult to the profession, since they make a wrong approach to the problems, according to a statement recently issued by MR. ERIC CALVERT, chairman of Blundell, Spence and Co., Ltd.

Mr. Calvert emphasises that "it is the job of manufacturers to formulate paints meeting the requirements of the trade; not for decorators to be fed palliatives by apologists when some product does not live up to claims made for it. These makeshift remedies have the unfortunate effect of discrediting the work of more successful technologists in the paint industry."

Mr. Calvert urges the building trades to reject generalisations as, he states, they are usually voiced by the inexperienced, who answer customers' complaints by implying that all plastic emulsion coatings have the same defects.

"Not only do we have these apologists undermining the achievements of reputable manufacturers by offering 'makeshift remedies' which are an insult to the decorating profession—but we now find genuine technologists unwittingly conveying the impression that no plastic emulsion coating lives up to the manufacturer's claims," declares Mr. Calvert.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchants warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	3	10
Pit Sand	„	1	2	11
Washed Sand	„	1	4	5
¾ in. Shingle	„	1	0	9
¾ in. Broken Brick	„	1	0	0
Pan Breeze	„		10	3
Fine or Coarse Foamed Slag Aggregate ... 2 yds. of fine and 2.6 yds. of coarse per ton	per ton	3	0	9

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area. 6-ton loads and upwards, site	per ton	4	16	6
1 to 6 tons, site	„	5	8	6
Rapid Hardening Cement in 6-ton loads and upwards to site	„	5	4	6
1 to 6 ton do. site	„	5	16	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots	„	6	18	0
Other colours according to colour.				
In 4-ton lots from 211s. 9d. to 435s. 9d. per ton.				
White Portland Cement	„	12	17	0
Under 1 ton	per cwt.		15	4
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	6	9	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £9 4s. 3d. to £10 17s. 9d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	„	14	0	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	„	6	2	3

BRICKS

Full Loads.

		£	s.	d.
First Hard Stocks	per 1,000	11	7	0
Second Hard Stocks	„	10	11	0
Mild Stocks	„	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. District Commons	„	5	13	0
Cellular do.	„	5	13	0
Keyed do.	„	5	15	0
Rustics	„	6	18	0
Cellular Rustics	„	6	18	0
Single Bullnose do.	„	6	13	0
Sandfaced	„	7	13	0
Best Blue Pressed Staffs (London Stations)	„	24	19	6
Do. Bullnose (London Stations)	„	25	13	6
Blue Wire Cuts (London Stations)	„	22	11	0
Midhurst Lime Bricks (London Sites)	„	10	3	0
Uxbridge Whites (London Sites)	„	9	6	6
Special Purpose Sandlime Bricks (London Sites)	„	7	14	0
2½ in. Best Stourbridge Fire Bricks (London Stations)	„	24	6	0
3 in. do. (London Stations)	„	29	3	3
2⅝ in. Machine - made Sandfaced Red Facings (London Sites)	„	13	19	6
2⅝ in. Machine-made Multi Red Facings (London Sites)	„	14	4	6
2⅝ in. Hand-made Sandfaced Red Facings (London Sites)	„	14	11	0
2⅝ in. Hand-made Sandfaced Multi-Colour Facings (London Sites)	„	14	11	0
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London Sites)	„	17	5	6
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London Sites)	„	17	5	6
Rubber Bricks for gauged arches (London Sites)	per 1,000	41	10	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London Sites)	„	13	6	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London Sites)	„	14	4	6
Glazed Bricks (London Sites), White, Ivory, Brown— Stretchers	„	64	0	0
Headers	„	63	0	0
Quoins, Bullnose and 4½ in. Flats	„	80	0	0
Double Stretchers	„	85	0	0
Double Headers	„	77	10	0
One side and two ends	„	87	0	0
Two sides and one end	„	89	10	0
Splays and Squints	„	83	0	0

Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 7½% for Best quality and plus 7½% less 10% for Second quality.

PARTITION SLABS, etc.

Delivered Central London Area.

	Minimum lorry loads.		£	s.	d.
HOLLOW CLAY PARTITION BLOCKS (Keyed)					
*2 in.	140 yds.	per yd. sup.		4	3
*2½ in.	140 yds.	„		4	6
*3 in.	120 yds.	„		5	2
BUILDING BLOCKS (Keyed)					
*4 in. (6 cavity)	95 yds.	„		6	7
6 in. (8½″ × 5½″)	1250 Blocks	per 1000	25	14	0
*Half blocks at no extra charge.					
CLINKER CONCRETE					
2 in.	100 yds.	per yd. sup.		3	7
2½ in.	85 yds.	„		4	2
3 in.	75 yds.	„		5	0
4 in.	55 yds.	„		6	2
CRANHAM					
2 in.		„		6	8
2½ in.		„		7	4
3 in.		„		8	7
4 in.		„		10	7
4½ in. Load bearing quality		„		11	8
FLOOR BLOCKS and FILLER TILES					
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads		per 1,000	32	11	0
4 in. do.		„	34	18	0
5 in. do.		„	41	11	0
6 in. do.		„	46	16	0
7 in. do.		„	56	18	0
8 in. do.		„	66	14	0
10″ × 3″ × ½″ Filler Tiles in multiples of 10 tiles		per 1,000 multiples	56	2	0
12″ × 3″ × ½″ do.		„ „	63	17	0
10″ × 4″ × ½″ do.		„ „	69	14	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

	Over 2 tons	Over 100 Pieces under 2 tons	Under 100 Pieces under 2 tons
Best Quality	+67½%	+97½%	+107½%
B.S.S. Best do.	+10% +67½%	+10% +97½%	+10% +107½%
Tested Quality	+37½% +67½%	+37½% +97½%	+37½% +107½%
B.S.S. Tested do.	+47½% +67½%	+47½% +97½%	+47½% +107½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	10	13	6
4 in. do.	„	14	2	0

STONE

		£	s.	d.
Bath Stone— Monks Park	per ft. cube		7	10
St. Aldhelm Box Ground	„		8	10
Delivered in railway trucks at South Lambeth B.R. Western Region				
Doulting Stone Random Blocks. Delivered London area	„		8	7
Beer Stone. Delivered London area	„		8	0
Portland Stone— Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„		8	1½
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stooled cills	per ft. cube	3	10	8
12 in. × 6 in. do. do.	„	2	10	6
12 in. × 3 in. Plain coping, twice throated	„	1	19	0
12 in. × 3 in. Weathered and twice throated coping	„	2	12	0
14 in. × 6 in. do. do.	„	2	7	0
4½ in. × 9 in. Plinth, rubbed on top and face	„	2	2	0
3 in. sawn two sides Slabs, random sizes	per ft. sup.		7	6

STONE—*continued*

		£	s.	d.
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ...	per ft. cube	1	5	9
Do. do. fair one edge for fair faced brickwork		1	10	6
Hard York—				
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run		9	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	8	0
12 in. × 6 in. Plain Steps, rubbed top and front ...	„	2	2	0
2 in. Rubbed and Jointed Paving, given sizes ...	per ft. sup.		8	6
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup	2	19	3

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000

	£	s.	d.
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	8	0
Hand-made Pantiles Berkshire district	47	10	0
Hand-made Double Roman Bridgwater district	58	13	6
Hand-made 10½ × 6½ tiles Berkshire district	13	1	9
Machine-made 10½ × 6½ Staffordshire district	13	8	9
Hand-made Hip and Valley tiles per doz.	1	8	9
Machine-made Hip and Valley tiles do.	1	6	6
Concrete tiles 10½ × 6½	7	14	6
do. Interlocking (49S)	18	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual

	£	s.	d.
24 × 12	124	6	4
22 × 12	103	3	8
22 × 11	93	4	6
20 × 12	88	0	0
20 × 10	82	1	0
18 × 10	59	6	6
18 × 9	52	0	0
16 × 10	48	16	0
16 × 8	38	0	0

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

			£	s.	d.
Softwood—					
Joinery quality	Ex. Wharf per standard		£110	to	£130
Carcassing quality	do.	„	£98	to	£102
1 in. Tongued and Grooved Flooring	do.	„	£108	0	0
Hardwood—					
Mahogany—African S.E. ...	do.	per ft. cube	1	10	0
do. Honduras do. ...	do.	„	3	5	0
Oak European do. ...	do.	„	2	5	0
do. Japanese do. ...	do.	„	2	10	0
do. English Logs sawn ...	do.	„	1	15	0
Teak 8 in. average S.E. ...	do.	„	3	5	0
Walnut African Logs sawn ...	do.	„	1	5	0

DOORS (in Lots I-11)

Delivered London area.

		£	s.	d.
1½ in. 4 Horizontal Panel Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	12	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	13	0
2 ft. 6 in. × 6 ft. 6 in.	„	1	14	0
2 ft. 9 in. × 6 ft. 6 in.	„	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	11	6
2 in. Panel, top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	1	9
2 ft. 9 in. × 6 ft. 6 in.	„	2	3	6

SUNDRIES

Delivered London area

		£	s.	d.
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.		5	8
1½ in. do. (67 yds. to 1 ton)	„		7	4
2 in. do. (52 yds. to 1 ton)	„		8	11½
2½ in. do. (45 yds. to 1 ton)	„		10	3
3 in. do. (39 yds. to 1 ton)	„		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.				
½ in. imported insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	„	2	1	6
⅛ in. do. do.	„	3	2	6
½ in. Asbestos Flat Building Sheets	per yd. sup.		3	5
Roofing Felt, 1-ply	„		1	6
do. 2-ply	„		1	9
Best Scotch Glue, in slabs	per ½ cwt.	5	0	0
do. pearl	„	5	5	0
Croid Glue	28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots)	per ton	58	5	0
do. 4 in. and up (1-ton lots)	„	54	15	0
Wire Nails, 3 in. (4-cwt. lots)	per cwt.	2	16	3
do. 4 in. and up (4-cwt. lots)	„	2	12	9

METALS

STEEL JOISTS, ETC.

		£	s.	d.
Basis Joists—				
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area	per ton	39	0	0
Extra for sizes				
3 in. × 1½ in. 4 in. × 1½ in.	„	3	10	0
3 in. × 3 in.	„	2	10	0
4 in. × 3 in., 10 in. × 4½ in.	„	1	10	0
5 in. × 2½ in., 5 in. × 3 in.	„	1	15	0
4½ in. × 1½ in.	„	3	5	0

			£	s.	d.
5 in. × 4½ in.	7 in. × 3½ in.	13 in. × 5 in. ...	per ton	15	0
6 in. × 3 in.	24 in. × 7½ in.	... ...	„	2	0	0
6 in. × 4½ in.	7 in. × 4 in.	8 in. × 4 in. ...	„	1	5	0
9 in. × 4 in.	10 in. × 5 in.	... ...		1	0	0
12 in. × 5 in.	22 in. × 7 in.	... ...				
9 in. × 7 in.	10 in. × 8 in.	12 in. × 8 in.				
14 in. × 5½ in.	14 in. × 6 in.	14 in. × 8 in.				
15 in. × 5 in.	15 in. × 6 in.	16 in. × 6 in.	„		10	0
16 in. × 8 in.	18 in. × 6 in.	18 in. × 7 in.				
18 in. × 8 in.	20 in. × 6½ in.	20 in. × 7½ in.				
Steel angles average price			„	40	15	0
Steel tees average price			„	41	15	0
Fabricated work delivered London—						
R.S. Joists cut and fitted			„	55	10	0
Compound girders			„	61	0	0
Stanchions			„	66	10	0
Compound stanchions			„	70	5	0
In Roof Work—Trusses and Purlins			„	83	0	0
Average prices not for awkward work.						
Mild Steel Ferro-Concrete bars to BSS785 ex London						
Stock ⅜ in. diam., and upwards			„	40	6	0
½ in. diam.			per ton extra	4	7	0
⅝ in. do.			„	3	7	0
¾ in. do.			„	2	9	6
⅞ in. do.			„	1	12	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	W.I. Fittings	Malleable Fittings
Class A NET		
Class B + 9½%	Light + 28½%	Malleable List—32½% + 40%
Class C + 25½%	Heavy + 36%	
Black—		
Class A − 21½%		
Class B − 11%	Light + 15½%	Malleable List—32½%
Class C + 1⅛%	Heavy + 23½%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/4½	3/-	/10
3½ in.	3/8	3/3	/10
4 in.	4/9	3/8	1/3
4½ in.	5/2½	4/1	1/6
5 in.	5/9½	4/5	1/10

C.I.O.G. GUTTERS

3 in.	4/4½	3/11	1/-
3½ in.	4/10½	3/11	1/3
4 in.	5/4½	4/1	1/6
4½ in.	5/9½	4/8	1/10
5 in.	6/4½	5/5	2/1

C.I. RAIN-WATER PIPES

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	7/2½	3/8	5/4
2½ in.	7/2½	4/1	7/1
3 in.	8/1½	5/2	7/8
3½ in.	9/3	6/1	9/3
4 in.	10/8	7/4	10/11

L.C.C. COATED SOIL PIPES

2 in.	8/2½	6/4	7/8
2½ in.	8/7½	7/-	9/7
3 in.	9/8	7/8	11/7
3½ in.	10/10	9/7	13/7
4 in.	12/4	10/8	15/8

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 2½% and tonnage allowance. 4-ton lots 5 per cent, 2-ton lots 2½ per cent.

L.C.C. COATED DRAIN PIPES

In 9-fts.

	cwt.	qr.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	25/8	18/3	32/6
6 in.	2	0	1	38/1	48/6	77/9

ASBESTOS RAIN-WATER PIPES AND FITTINGS

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths ...	per yd.	3/9	4/-	4/10	6/5
Shoes	each	2/5	2/8	3/2	4/3
Single Branches ...	„	3/9	4/6	5/4	7/6
Bends square or obtuse	„	2/8	2/11	3/9	5/4
Swan Necks 4½ in. proj.	„	2/11	3/9	4/3	5/11
do. 6 in. do.	„	3/2	3/9	4/10	6/5

ASBESTOS O.G. GUTTERS AND FITTINGS

		4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths ...	per yd.	3/7	3/11	4/8	5/7½
Drop ends	each	2/10	3/4	3/10	4/7
Stop Ends	„	/10	/11	1/-	1/2
Angles	„	2/11	3/5	4/1	4/10
Nozzles	„	2/10	3/4	3/10	4/7
Union Clips	„	1/5	1/8	2/1	2/5

ASBESTOS HALF-ROUND GUTTERS AND FITTINGS

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths ...	per yd.	2/6	2/11½	3/0½	3/7	5/-
Drop ends	each	2/1	2/5	2/8	2/11	4/3
Stop ends	„	/9	/10	/11	1/-	1/2
Angles	„	2/5	2/8	2/11	3/2	4/3
Nozzles	„	2/1	2/5	2/8	2/11	4/3
Union Clips	„	1/-	1/1	1/2	1/4	2/-

METALS—*continued*

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	42 17 6
Mild Steel Bars	37 14 0
Mild Steel Hoops	39 1 0

Ex Merchant's Stock per ton Two-ton lots	£ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	49 6 0
24 gauge	51 16 0
26 gauge	54 16 0
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	56 6 6
24 gauge	59 16 6
26 gauge	65 1 6
Galvanised Flat sheets C.R. and C.A.—	
20 gauge	57 16 6
24 gauge	61 6 6
26 gauge	66 11 6

Plumbers' Brass Work, Copper, Zinc, etc.

Delivered in London area.

All per doz.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/–	128/8				
Toilet bib cocks for iron	109/–	158/5				
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–

	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5

	1¼ × 6 lb.	1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.
Lead P. trap with brass cleaning screws	63/6	79/6	127/–	217/3
Lead S. trap do.	77/–	95/–	156/3	281/–

	s. d.
Solder	
Plumbers' per lb.	3 0
Tinmen's "	3 8
Blow pipe "	3 9

Copper tubes BSS 659/1944 on the basic price of 36d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.
¼ in. × 19 gauge	12½	48½
⅜ in. × 19 "	11½	47½
1 in. × 18 "	9½	45½
1¼ in. × 18 "	9	45
1½ in. × 18 "	9	45
2 in. × 17 "	10½	46½

	£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras per ton	374 15 0
Sheet Zinc 10 gauge (25 SWG) 5 cwt. lots upwards per cwt.	8 6 3
do. 12 gauge (23 SWG) do. "	8 4 6
do. 14 gauge (21 SWG) do. "	8 3 6
Brass tubes basic price, plus gauge and manufacturing extras per lb.	2 4½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

	£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards per ton	140 5 0
Lead Water Pipe in coils "	141 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia. "	143 0 0
do. over 4 in. dia. "	145 0 0
Lead Gas or Untinned Compo pipe "	143 0 0
Extras over Basis for quantities under 1 ton	
5 cwt. and under 1 ton per cwt.	2 0
3 cwt. do. 5 cwt. "	4 0
1 cwt. do. 3 cwt. "	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £99 0s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	7 11 9
do. White do. do.	"	7 19 6
Sirapite Coarse do. do.	"	7 14 3
do. Fine do. do.	"	8 2 3
Blue Lias Lime in 6-ton loads	"	6 9 6
Hydrated Lime do.	"	5 12 6
Lump Lime do.	"	5 2 0
White Keen's or Parian Cement in 1-ton loads	"	10 12 0
Pink Keen's or Parian Cement in 1-ton loads	"	10 6 6
Granite Chips in 6-ton loads	"	2 6 9
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ½ in. thick 600 yds. and over in one delivery. Delivered site	per yd.	2 3
1,200 yds.	"	2 2½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ½ in. thick, 600 yds. and over in one delivery. Delivered site	"	2 6
1,200 yds.	"	2 5½

PAINT AND DISTEMPER

Delivered London area.

	£ s. d.
Ceiling Distemper per cwt.	1 7 6
Washable Distemper "	5 5 0
Gloss Paint per gal.	2 10 0
Snowcem cement paint (in 1 cwt. drums) per cwt.	3 11 0

Lead Products and Oils.

	£ s. d.
Ground White Lead, 1 cwt. kegs per cwt.	8 18 0
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins per gal.	3 2 0
Genuine Red Lead, Dry, 1 cwt. keg per cwt.	6 19 3
Genuine Linseed Oil Putty, 1 cwt. keg "	2 11 0
Size XD quality, 28 lb. per tin	9 0
Raw Linseed Oil (5 gal.) drums extra per gal.	12 0
Boiled Linseed Oil (5 gal.) do. "	12 6

Sundries.

	£ s. d.
Turpentine substitute (5 gal.) drums extra "	5 6½
do. do. (40 gal.) do. do. "	4 8½
Solignum, Brown (5 gal. cans) Exterior "	6 6
Creosote (40 gal. barrels) "	2 0
Paste Powder (1 lb. packets) per lb.	1 6
White Lining Paper per piece	1 0

VARNISHES, etc.

Delivered London area

	£ s. d.
Oak Varnish, Outside or Inside per gal.	1 12 6
Oak Pale Copal do. "	1 18 0
Hard Drying Oak for Inside "	2 0 0
Crystal Paper Varnish do. "	2 0 0
Eggshell Flat Varnish do. "	2 14 0
Finest Carriage Varnish "	2 10 0
Front Door Varnish "	2 0 0
Japan Gold Size "	1 12 6
Black Japan "	1 14 0
Brunswick Black "	1 10 0
Berlin Black "	1 5 0
Terebene "	1 8 0
Knotting (1 gal. bottles free) "	2 2 0
French and Brush Polish (do.) "	1 18 0

GLASS

Delivered London area Per ft. super s. d.

18 oz. Sheet Glass Ordinary Glazing Quality. Cut Sizes	5½
24 oz. " " " " " "	7½
26 oz. " " " " " "	10
32 oz. " " " " " "	1 1
¼ in. Rolled Plate	1 9
⅜ in. and ½ in. Rough Cast	1 0
⅛ in. Figured Rolled and Cathedral, Standard patterns: White	9
do. Standard Tints	1 4½
do. Special Tints	2 9
¼ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1 1
¼ in. Wired Cast	1 2
¼ in. Georgian Wired Cast	1 2½

Hollow Glass Blocks—	Each
P.B.2. 5½ × 5½ × 3⅞ in.	2 9
P.B.3 7½ × 7½ × 3⅞ in.	4 2
P.B.32 7½ × 7½ × 3⅞ in.	4 2
Radiused Corner Blocks to match up with—	
P.B.2	5 3
P.B. 3	6 9
P.B. 32	6 9

¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 7
" " " 5 ft. sup.	4 5
" " " 45 ft. sup.	5 1
" " " 100 ft. sup.	5 6

¼ in. Polished Plate, extra sizes, *i.e.* plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality

—Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	8 4
Not exceeding 180 ft. sup. or ditto	11 3
Not exceeding 200 ft. sup. or ditto	16 0

Plates exceeding 200 ft. sup., prices on application.

Substances other than ¼ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. super s. d.
18 oz. sheet O.Q	3,000	4½
24 oz. " "	2,000	6½
26 oz. " "	2,000	7½
32 oz. " "	2,000	10½
¼ in. Rolled Plate	1,000	7½
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000	7½
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte	1,000	10½
⅜ in. and ½ in. Rolled Plate or Rough Cast	2,000	10½
¼ in. Wired Cast, Hexagonal	2,000	11½
¼ in. Georgian Wired Cast	2,000	1 0½

The Builder

CURRENT RATES OF WAGES

AS FROM APRIL 18, 1955. **(Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)**

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	4/–	3/11½	3/11	3/10½
Labourers	3/5½	3/5	3/4½	3/4

Town.	Grade.
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Aldeburgh	A2
Aldershot District	A2
Alfreton U.D.	A
Alnwick	A1
Altrincham	A
Amble	A1
Amersham	A1
Ammanford	A
Andover	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashby-de-la-Zouch U.D.	A
Ashby Woulds U.D.	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone R.D. (parts of)	A
Aylesbury	A2
Aylesham	A2
Bagshot	A2
Bakewell U.D.	A2
Banbury	A2
Barnard Castle U.D.	A
Barnoldswick U.D.	A
Barnsley C.B.	A
Barrow-in-Furness	A
Barrow-upon-Soar R.D. (exc. Thrussington A2)	A
Barry	A
Basford R.D.(exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley M.B.	A
Baxterley	A1
Beaconsfield & District	A1
Beari	A
Beccles	A2
Bedale R.D.	A
Bedford	A
Bedlington	A
Bedwas	A
Beeston & Stapleford U.D.	A
Belper U.D.	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley	A
Bexhill-on-Sea	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham U.D.	A
Bilsthorpe	A
Birchington	A2
Birkenhead	*
Birmingham C.B.	†A
Bishop Auckland	A
Bishop's Stortford	A
Bispham	A
Blackburn	A
Blackpool	A
Blackwell R.D.	A
Blaydon U.D.	A
Blidworth	A
Blyth	A
Bognor Regis	A2
Boldon U.D.	A
Bolsover U.D.	A
Bolton	A
Bourne End	A1
Bournemouth District	A
Bracknell	A2
Bradford	A
Bradford-on-Avon	A2
Braintree	A1
Breconshire, County of	‡A2
Brent Knoll	A2
Brentwood	A
Bridlington	A
Brierfield	A
Brighouse	A
Brighton	A
Bristol	A
Broadstairs	A2
Bromsgrove U.D.	A
Broughton, Flint	A
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Calder Valley	A
Cambridge	A
Cannock U.D.	A
Canterbury	A2
Cardiff	A
Cardiganshire, County of	‡A2
Carlisle	A
Carmarthenshire, Cnty of	‡A2
Caernarvonshire, Cnty. of	‡A2
Carnforth	A
Castleford	A
Caterham	A
Chapel-en-le-Frith	A
Charmy Down	A
Chatham & District	A1
Cheadle (Staffs) R.D.	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chesterfield M.B.	A
Chesterfield R.D.	A
Chester-le-Street U.D.	A
Chichester	A2
Chippenham (inc. Chippen-ham Within and Harden-huish)	A2
Chorley	A
Clacton	A1
Cleethorpes	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville U.D.	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett	A
Conway	A1
Cornwall, County of	‡A2
Coventry C.B.	A
Cranbrook	A2
Cranleigh	A2
Crawley (Sussex)	A1
Crewe	A
Cromer	A1
Crook and Willington U.D.	A
Crowborough	A2
Cuckfield	A2
Dalton-in-Furness	A
Darlington District	A
Darwen	A
Deal	A2
Denbigh Town	A2
Derby C.B.	A
Devizes	A2
Devon, County of	‡A2
Dewsbury	A
Didcot	A2
Diss	A2
Doncaster C.B.	A
Dorking	A
Dorset, County of (exceptiing Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A
Driffield U.D.	A1
Droitwich M.B.	A
Dudley C.B.	A
Dunstable	A
Durham City	A
Eastbourne	A
E. Glam. & Mon. Val.	A
East Grinstead District	A2
Eastwood (Notts.) U.D.	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Exeter	A
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey U.D.	A
Fleetwood	A
Flint	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough U.D.	A
Gateshead	A
Gillingham (Kent)	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A2
Godalming	A2
Goole M.B.	A
Gosport	A
Grantham M.B.	A
Gravesend	A
Great Yarmouth	A
Grimsby C.B. & R.D.(part)	A
Grimsby R.D. (remainder)	A2
Guildford District	A2
Halesowen M.B.	A
Halifax	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate	A
Hartlepool	A
Harwich	A
Haslemere	A2
Hastings	A2
Hatfield (Herts.)	A
Haywards Heath	A2
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham U.D.	A
Heysham	A
High Wycombe	A1
Hinckley U.D.	A
Hitchin	A
Hoddesdon	A
Horley	A2
Horsham	A2
Horwich	A
Huddersfield	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkley	A
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Jarrow M.B.	A
Keighley	A
Kendal	A
Kenilworth U.D.	A
Kettering M.B.	A
Keynsham	A
Kidderminster M.B.	A
King's Lynn	A1
Kingskerswell	A1
Kingsteignton	A1
Kirkham	A
Knaresborough U.D.	A
Lancaster	A
Leamington M.B.	A
Leatherhead	A
Leeds	A
Leicester C.B.	A
Leighton Buzzard	A1
Letchworth	A
Lewes	A2
Lichfield M.B.	A
Lincoln C.B.	A
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly	A
London	*
Long Eaton	A
Loughborough M.B.	A
Louth M.B.	A1
Lowestoft	A
Loxton	A2
Luton	A
Lyneham (Devon)	A2
Macclesfield	A
Maidenhead	A1
Maidstone	A1
Maltby	A
Maldon (Essex)	A1
Malvern U.D.	A1
Manchester	A
Manningtree	A1
Mansfield M.B.	A
March	A2
Margate	A2
Market Harborough U.D.	A
Maryport	A
Matlock U.D.	A
Melksham	A2
Melton Mowbray U.D.	A1
Merthyr	A
Middlesbrough	A
Middleton	A
Middlewich	A
Milford Haven	A1
Morecambe	A
Morley	A
Mundesley	A2
Nantwich	A
Nelson	A
Newark-on-Trent R.D.	A1
Newbury	A2
Newcastle-on-Tyne	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newton Abbot	A1
Northallerton Dist.	A
Northampton C.B.	A
North Shields	A
Norton Radstock	A1
Norwich	A
Nottingham C.B.	A
Nuneaton M.B.	A
Oakham U.D.	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett and Horbury	A
Oxford	A
Oxted	A1
Paignton	A1
Peterborough	A
,, Soke	A1
Pickering	A3
Plymouth	A
Pontefract	A
Pontypridd District	A
Portishead	A
Portland Stoneyards	A
Portsmouth	A
Port Talbot	A
Preston	A
Pudsey	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Rayleigh	A
Reading	A
Redcar B.	A
Redditch U.D.	A
Redhill and Reigate	A
Ripon	A3
Rochdale	A
Rochester	A1
Rotherham	A
Rugby M.B.	A
Saffron Walden	A2
St. Albans	A
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough	A
Scunthorpe	A
Selby	A
Sevenoaks	A1
Sheerness	A2
Sheffield	A
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury M.B.	A
Sittingbourne	A2
Skegness U.D.	A1
Skipton U.D.	A
Sleaford U.D.	A2
Slough	A
Smethwick C.B.	†A
Snettisham	A2
Somerset, County of	‡A2
Southampton	A
Southend-on-Sea Dist.	A
Southport	A
South Shields C.B.	A
Spalding U.D.	A2
Stafford M.B.	A
Staines	A
Stamford M.B.	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton R.D.	A
Stockton-on-Tees	A
Stoke-on-Trent C.B.	A
Stoke Orchard	A1
Stourbridge M.B.	A
Stourport U.D.	A
Stowmarket	A1
Stratford-on-Avon M.B.	A
Sunderland District	A
Sunningdale	A1
Sutton Coldfield M.B.	A
Swaffham	A2
Swanage	A1
Swansea	A
Swindon	A
Swinton U.D.	A
Tamworth M.B.	A
Tenterden	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thorpe Bay	A
Thurrock U.D.C. Area	A
,, North of, to Billericay	A
Tilbury	A
Todmorden	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Trowbridge	A2
Tunbridge Wells	A1
Tynemouth C.B.	A
Uppingham (Salop)	A1
Uttoxeter U.D.	A2
Wakefield	A
Wallsend B.	A
Walsall C.B.	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick M.B.	A
Wellington U.D.	A
Wells (Norfolk)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich C.B.	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth	A1
Whitby U.D.	A1
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Wilmslow	A
Wilts. County of	‡A2
Winchester	A1
Windermere	A2
Windsor and Eton	A
Wisbech	A2
Witham	A1
Woking (District)	A1
Wokingham	A2
Wolverhampton C.B.	A
Woodbridge	A2
Worcester C.B.	A
Workington	A
Worksop M.B.	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
York	A

For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 1½d.; Labourers, 3s. 7d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 4s. 1d.; Labourers, 3s. 6½d. †Plus 2d. per working day. ‡ This is the County rate and applies except where higher gradee are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 1½d. per hour. Women engaged on work other than craft processes, 2s. 9½d. per hour.

For Building Trade Wages in Scotland see page 858.

NEWS IN BRIEF

CHANGE OF ADDRESS

The Zinc Development Association and its affiliates, the Hot Dip Galvanisers, the Zinc Alloy Die Casters and the Zinc Pigment Development Associations, have moved into new offices at No. 34, Berkeley-square, W1 (Tel.: Grosvenor 6636).

PREVENTING ACCIDENTS

The April issue of an illustrated booklet entitled "Accidents—How They Happen and How to Prevent Them" issued by the Ministry of Labour deals with accidents at factories, docks, building operations and engineering construction works. Copies of this quarterly bulletin, price 1s., can be obtained from the Stationery Office.

FIXED HOLIDAY WEEK

The Birmingham Local Joint Committee for the Building Industry has decided that the first week of holiday to be taken this year, under the Holidays with Pay Scheme, shall be fixed and shall be the normal working week commencing Monday, June 27, and terminating Saturday, July 2, both dates inclusive.

BEDA APPOINTMENTS

At the annual general meeting of the British Electrical Development Association on May 10 the Hon. Viscount Chandos was appointed president for the year 1955/56, in succession to Sir John Hacking. The Rt. Hon. Thomas Johnston, chairman of the North of Scotland Electricity Board, and the Rt. Hon. Lord Hurcomb were appointed vice-presidents for the three years 1955/58. At the first meeting of the new council of the association, Mr. C. F. King, chairman, East Midlands Electricity Board, was elected chairman of the council, and Mr. D. Bellamy, OBE, chairman of the Yorkshire Electricity Board, was elected vice-chairman of the council.

PLASTERING AWARD

The Challenge Shield of the London Master Plasterers' Association was presented in a ceremony on April 20 at their offices in Bedford-square, WC1, to the Department of Building of the Tottenham Technical College, which was last year adjudged to be the technical school in the London area with the best practical results in plastering subjects. The presentation was made in the presence of heads of department and craft instructors from London technical colleges by Mr. J. Bawler, chairman of the Worshipful Company of Plaisterers. Prizes were also awarded to plastering students of the college, namely: J. H. Bannister, who received the senior prize for plastering, and B. Sexton, who received the junior prize. The chairman of the function was Mr. L. Story, president of the London Master Plasterers' Association.

NEW TOWNS' PROGRESS

Mr. Duncan Sandys, Minister of Housing and Local Government, accompanied by Mrs. Sandys, visited the new towns of Hatfield and Welwyn Garden City on April 30. In the course of a speech congratulating the Development Corporation on the progress made, he said that these two towns had in the last five years built over 3,000 new houses.

PAINTING CONTRACTORS

Annual Lunch and AGM

NEWS of representations to be made to various Government Departments in an endeavour to secure a more even flow of painting work throughout the year, was given by MR. A. S. BAGNALL, newly-elected president of the Federation of Painting Contractors, at the Federation's annual meeting held in the Dorchester Hotel, London, on Monday (May 16).

Mr. Bagnall said that the approach would be made shortly by his Federation together with the National Federation of Master Painters and the paint manufacturers. Among the departments with which they were seeking new arrangements were the War Department, Air Ministry and the MoW.

At present, he said, there was hectic competition between painting contractors for work offered by these authorities. The bulk of the work, especially the painting of schools, came in the summer months and fell off badly in winter. It would be much more satisfactory for all concerned if this work could be spread out evenly over the whole year.

One unfortunate result of the existing arrangements was that some operatives found themselves unemployed in the winter period and sought work in factories where many of them stayed. In this way the painting trade labour force was being gradually weakened. In some cases painting contractors had to undertake jobs at uneconomic prices in order to maintain their labour force.

Another result of the present system was the quotation of high prices by firms which were overcrowded with work in summer and were not eager to take on further commitments.

Mr. Bagnall suggested that it should be possible for school buildings to be repainted at night during the January-February period of school term.

The lunch which preceded the annual meeting was presided over by the former president, Mr. P. H. Kenyon.

OFFICIAL NOTIFICATION

Import Quotas

THE Board of Trade announce that no changes (other than those required for seasonal reasons) are being made in the value of the global import quotas for the second half of 1955 for goods (other than paper, board and paper-making materials) still subject to the import restrictions imposed in November, 1951, and March, 1952. These quotas apply only to goods imported from certain non-dollar non-sterling countries, principally in Western Europe. The definitions of the goods covered by quota are also being left unchanged.

A number of imports from these sources, not previously covered by global quota but subject to individual licensing or licensed under quotas agreed in bilateral trade agreements, have, however, been added to the Open General Licence. These include most of the iron and steel products formerly subject to individual licence, certain chemicals and some minor items of machinery. Details of the quotas and Open General Licence changes are given in Notices to Importers Nos. 732 and 733, which may be obtained from Board of Trade, Import Licensing Branch, 43, Marsham-street, SW1.

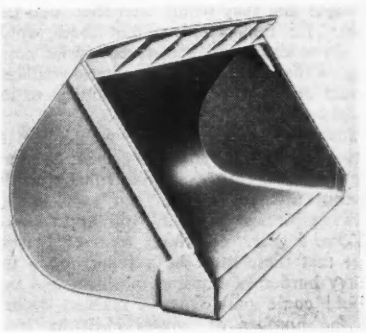
TRADE NEWS

TRADE LITERATURE REQUIRED

The premises of Allnatt (London), Ltd., building contractors, of 13-21, Park Royal-road, NW10, have been completely destroyed in a fire which broke out on Monday (May 16). As all the firm's records were lost, we have been asked to state that they would be pleased to receive trade catalogues and current price lists at their temporary premises on the Great Western Trading Estate, Park Royal-road.

LIGHT MATERIALS BUCKET

A new two-position, light materials bucket with a three-cubic-yard capacity is now available as an attachment for the No. 6 "Traxcavator," according to an announcement by the Caterpillar Tractor Co. This bucket is designed to handle more rapidly and in larger volume materials such as coal, cinders, expanded slag, lightweight aggregate, etc., weighing not more than 18 cwt. per cubic yard.



CHANGE OF ADDRESS

The new offices of J. and R. Rooff, Ltd., are situated at 679, Barking-road, E13. (Tel.: Grangewood 3434/5.)

NEW 'PHONE NUMBER

The telephone number of the London office of Abelson and Co. (Engineers), Ltd., at 60/62, Clapham-road, SW9, is now Reliance 7081.

PLASTERING MACHINES

The firm of Tingley's, 55, New-road, Shoreham-by-Sea, Sussex, have informed us that they are the sole concessionaires for the mechanical plastering machines described and illustrated in Figures 1 and 2 of the fourth instalment of "Towards Higher Productivity," by Mr. R. Rosner, in our issue of May 6, and that machines are available for demonstration purposes.

JOURNAL'S FIRST ISSUE

The first issue of "The Gypsum Journal" has now been published and copies are being distributed to architects, surveyors, builders and other members of the industry. Produced by the Gypsum Building Products Association, the journal sets out to show how gypsum plasterboard effectively meets the requirement for a material which combines good thermal insulation with a high degree of practical fire protection. Copies free from the Association at 25, Lower Belgrave-street, SW1.

FEDERATION OF MASTER BUILDERS

Building Industry's Future

WHATEVER Government was returned in the coming Election there could be no doubt that the building industry would be called upon to play a great part in the development of this country, said SIR HARRY R. SELLEY, JP, national president of the Federation of Master Builders, speaking at the annual meeting and luncheon of the Eastern Counties Region of the Federation held at Southend-on-Sea, on May 14.

During the last year, house building by private enterprise had increased by 44 per cent. over the previous year. Just on 100,000 houses had been built by private enterprise during last year, and Sir Harry thought that they would beat that total this year. He felt confident that there would be an extension of private enterprise housing, while local authority house building would decrease with some advantage to the taxpayer.

Such a change of balance would help to lessen the alarming sum being spent on housing subsidies. Such subsidies running at the present rate for another ten years would mean a housing subsidy bill approaching £200m. a year. Sir Harry went on to suggest that there must be a reduction in the heavy burden of housing subsidies, and this would come only from a marked decline in the number of houses built by local authorities.

One of the major problems of the building industry to-day, said Sir Harry, was to increase production and reduce costs. But the builder was in an awkward position. He had to find higher wages for labour, and there was no marked sign of a decrease in the cost of building materials. However, better management on building sites, and some reduction in the often needless overtime work, would help to reduce costs.

Delivery Date Prices

THE "Price at date of delivery" rulings quoted by many British manufacturers were criticised recently by MR. S. V. MERCER, president of the Birmingham branch of the Federation of Master Builders.

"The position is such to-day that we often do not know where we are," Mr. Mercer said, adding that he was trying to get manufacturers to sell at fixed prices in his own trade. He stated that in large long-term contracts there was a rise and fall clause which was aimed at remedying the change in prices of materials over a period and added: "The change in price can then be passed on, but we are now building more private houses and naturally a buyer wants to know what his house will cost him. We cannot tell him afterwards that the price quoted has gone up."

Mr. Mercer recalled that before the war the manufacturer cut his costs and brought the price down if a competitor undersold him. To-day, with price fixing, he could ring up his federation and raise prices. This was unsatisfactory. There must be some fluctuation in world prices of materials, but manufacturers had stocks to work off and there was no need for the price to be going up 2d. one day and 3d. another. The manufacturer should reduce costs to stabilise his prices.

NEW SUPER-CINEMAS

Nation-wide Programme Proposed

A NUMBER of new super-cinemas are to be built for the J. Arthur Rank organisation in the near future. A several million pound scheme is already under way for the reinstatement, repair and reconstruction of existing cinemas all over the country, some of which were badly damaged in the war.

Several of these cinemas are being designed by T. P. Bennett and Son, architects. This firm is preparing schemes for the Odeon Cinema, Highgate; Gaumont Cinema, Holloway; Gaumont Cinema, Streatham, and cinemas at Lavender Hill and Ilford in the London area. Schemes are also being prepared for the Gaumont, Barnsley, Yorkshire; and the Gaumont, Bootle. The contractors for the cinemas at Highgate and Holloway are Messrs. McLauchlan and Harvey, and Sir Alfred McAlpine are the contractors for the cinemas in Bootle and Barnsley. Contractors have not yet been appointed for the rebuilding of cinemas at Lavender Hill and Ilford.

A new 1,750-seat cinema which will include an adjoining block of modern offices and shops is being designed by Harry W. Weedon and Ptnrs., of Birmingham. This firm is also dealing with a scheme for a new Odeon Cinema at Gloucester, to seat 1,500. Contractors have not been appointed yet for these projects. A new cinema being built in Sheffield by Sir Alfred McAlpine has also been designed by Harry W. Weedon and Ptnrs., and will seat 2,500.

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OVERSEAS BUILDING

[*From Our Own Correspondents*]

Australia.—About 2,000 miles of roads will be built in the Kimberleys in the far north of Western Australia to open up this remote country for oil exploration. The new roads are to be built by the firm of West Australian Petroleum. Technical staff is already assembling equipment in Perth for an aerial magnetometer survey of the Canning Desert Basin, inland from the area for which the road programme is planned.

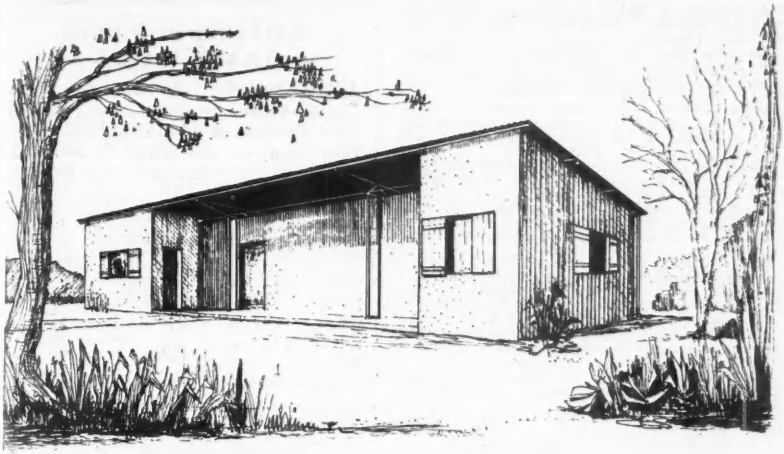
The Australian Government plans to build at the West Australian goldmining centre of Kalgoorlie a major civilian airport, capable of handling the most modern jet aircraft.

Iraq.—A large building programme is envisaged for the environs of Baghdad, Iraq, which should offer some scope for suppliers of materials. Details for all these projects are available from the office of the Ministry of Development in Baghdad. In West Baghdad a block of offices are to be constructed for the Directorate General of Customs and Excise. In the same area offices are to be built for the Directorate General of Public Works. Other buildings scheduled include offices for the Ministry of Justice with courts, offices for the Directorate General of Police and annexed departments, offices for the Central Posts and Telegraphs, offices for the Directorate General of Lands Settlement, Directorate of Medicine at the Royal Hospital, a nursing home, a children's hospital, college of medicine and dentistry, a hospital at Karradh neighbourhood, a mental hospital at Shammaiyeh neighbourhood, and a student's hospital.

The Department of AWQAF (a Government office which deals with religious inheritances and the administration of estates) is to build four large buildings in Baghdad. They comprise a 15-storey building, Khan Daftar Dar, Samawal-street, a 10-storey building, Khan Pasha El-Kabir, a 10-storey building, Khan Pasha El-Saghir, and a three-storey building. The 15-storey building has been designed by a German firm, Ingenieurburo Intercontinental Kaiserslautern in consultation with two Iraqi architects in the Government department named Raf'at al Chadirchi and Abdullah Ihsan Kamsil.

In the provinces a number of projects are also to be put in hand shortly. These comprise Government offices at Kut, Kirkuk, Dulaim, Kerbala, and Biyala, an agricultural college at Abu-Ghraib, a broadcasting station building at Abu-Ghraib, a college of medicine at Mosul, hospitals at Ramadi, Erbil, Amarah, Kadhimain, and Basrah, a school for nurses and midwives at Mosul, and technical schools at Kirkuk, Mosul, and Basrah, a secondary school at Kadhimain, and a leper hospital at Amarah.

Trinidad.—The Eastern Caribbean Farm Institute at Centeno are to provide accommodation for a further 20 students. Application has been made for $177,000 from Colonial Development and Welfare Funds. The Architectural Branch of Trinidad's Department of Works and Hydraulics are to prepare plans. . . . The Laurentide Dairy Co. of Canada are planning to spend $1m. on establishing a condensed-milk factory.



THIS NEW EXPORT STRUCTURE has been developed to meet the need for low-cost housing in Uganda by the Arcon group of manufacturers of prefabricated buildings. Known as the Arcon Monopitch Roof, it takes the form of a single-slope roof carried on lattice-welded tubular steel rafters spanning between light tubular steel columns. The length of rafters and distance between columns have been chosen to accommodate a living area of 12 ft. by 10 ft. in addition to a 5-ft. verandah in front. The roof covering is of corrugated aluminium, and the joints between columns, rafters and purlins are carried out by screw or nut and bolt. These are so arranged that the verandah can be dispensed with if desired, and the 5-ft. overhang incorporated in the room area. When erected, the building frame provides setting-out and guide lines for the walling, and facilitates construction by local labour. Taylor Woodrow (Building Exports), Ltd., of Welbeck-street, W1, are marketing agents for the Arcon Group.

Extensions and remodelling at an estimated cost of $140,000 of the magistrates' courts in Port of Spain will be started shortly. Plans have been prepared by the Department of Works and Hydraulics, using direct labour. . . . The Director of Works and Hydraulics is on a visit to the Road Research Laboratory, England, to discuss his proposals for the proposed Swamp road at Laventille, estimated to cost $3m. and planned to start this year.

The Bonanza store in Frederick-street, Port of Spain, has been bought by F. W. Woolworth, Ltd. It will be remodelled at an approximate cost of $1m. Plans will be prepared by the firm's own architect in London, and work is expected to start in October. . . . Experts from the UK Ministry of Transport, headed by Sir Eric Milborne, are advising on the provision of a graving dock and other shipping facilities at Port of Spain. . . . Sketch plans by A. Franco, ARIBA, Chief Architect's office, Department of Works and Hydraulics, have been approved for an extension to the Supreme Court Building, San Fernando. Work is expected to start in about six months, and will be carried out at a cost of approximately $150,000 by direct labour. Two new courts are included in the scheme. Caroni Estates, Ltd., have laid out part of their sugar cane fields at Couva with building plots and have started to form the roads and drains. Among the sites already bought are those for a cinema, savings bank, fire station and shops. A telephone exchange is under construction, designed by Mence and Moore, A/LRIBA, of London and Port of Spain. . . . The Works and Hydraulics Department are preparing a layout plan to develop 43 acres of Port of Spain's residential area at Ellerslie Park, St. Clair, and are putting in water and sewerage services for 120 housing plots of 10,000 sq. ft. each. Estimated cost of the project is $1m.

Venezuela.—A scheme for building a dry dock, two wharves, and access canal and workshops is being put in hand at Puerto Cabello for completion by September 1957.

Venezuela.—The Venezuelan authorities and representatives of groups from the UK, Belgium, France, Italy and the USA have signed identical contracts for a survey and study for the new Venezuelan steelworks. The surveys are to be completed on June 30, and after the Venezuelan Government have considered them the final contract for the installation of the plant will be signed with one of the competing groups, probably early in September.

The contract for the building of a 75,000-kw. thermal power station at La Mariposa has been awarded to the American firm International General Electric. This leaves three power-station contracts still to be awarded: Lobaterra (20,000 kw.), Puerto Cabello (60,000 kw.) and Puerto La Cruz (30,000 kw.).

Four special credits have been issued by the Government in respect of public works projects: £3m. for slum clearance and re-housing works in Caracas; £1m. for construction work on the Barquisimeto-Puerto Cabello-Valencia Railway; £2½m. for the Guarico dam and irrigation system, and £3m. for the Venezuelan petro-chemicals industry.

A 300-bedroom hospital is to be built at Ciudad Bolivar. It is stated that the materials will be imported, as well as lifts. Offers can be made to Dr. Carlos Eduardo Uzcategui, Oficina de Ingenieria Ceduco, Marron a Cuji 50, Oficino No. 5 Caracas.

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*Mr. A. Blomson, PO Box 3920, Cape Town, South Africa, would like to get in touch with United Kingdom manufacturers who are interested in appointing a South African agent for cast-iron baths; earthenware bathroom tiles; and earthenware basins and pans.

Mr. Blomson points out that he is not interested in representing export agents, but only factories direct. Manufacturers interested in this inquiry should write direct to Mr. Blomson, giving full details of their offers. Telephone inquiries to Chancery 4411, ext. 776, quoting ref. ESB/9957/55.

ROADMAKING IN PERSIA

John Mowlem and Co., of London, will supervise and carry out a £30m. programme of road modernisation for the Persian Government in the next eight years.

The Persian Seven-Year Plan Organisation for Economic Development announced on May 12 the signature of a contract with Mowlems to reconstruct and extend the nation's main road system, which covers 3,750 miles. The contract includes credit facilities in Britain for the purchase of road construction equipment up to £10m.

Mowlems will work through local contractors and, if necessary, foreign contractors may be brought in later.

The British company also agreed to establish a road research laboratory in Teheran and to offer advice to the Government on modern road-building methods.

INFORMATION ABOUT NIGERIA

"Facts About the Federation of Nigeria" has been added to the series of Fact Sheets on the UK Dependencies produced by the Overseas Information Services of the Central Office of Information. Copies from: Reference Division, COI, Norgeby House, 83, Baker-street, W1.

* From the Board of Trade Special Register Information Service.

The SCOTTISH BUILDER

New Building By-laws

MORE than two-thirds of Scottish local authorities (155 authorities out of 231) have now decided to adopt the new model building by-laws which were issued by the Department of Health last year.

In several parts of Scotland coverage is almost complete. In Ayr County, for example, the county itself and each of the 17 small burghs have decided to adopt the by-laws. Other counties almost completely covered are Aberdeenshire, Angus, Berwick, Dumfriesshire, Kincardine, Midlothian, Perthshire and Roxburgh.

The builders who operate in these areas will no longer have to struggle with a variety of differing local specifications and requirements, but will have a uniform standard to work to wherever they go in the area. This is an important advance which will help builders to reduce costs and speed up building time.

No previous set of model by-laws has achieved anything like the general acceptance gained by the present one. The last model by-laws issued in 1937 were eventually adopted by only 69 authorities. The Department of Health believe that the present by-laws will gain still more general acceptance. Progress is being made, and it is hoped that most of the remaining authorities will decide to adopt the new by-laws before long.

The new by-laws offer other advantages besides the prospect of saving building time and building costs. From the point of view of fire dangers, for example, the report of Her Majesty's Inspector of Fire Services for Scotland just published says, "adoption of these model by-laws is an important step forward in Scotland in the recognition of standard fire prevention measures, which will materially assist brigades in their work of preventing fires."

Dundee "Building Week"

PLANS have been discussed for a "building week" in Dundee which builders, their employees and local authority officials could attend. The proposal was considered at a meeting in Dundee recently, at which MR. J. MACDONALD, of the Ministry of Works, outlined the proposals to building and allied trades representatives. An essential aspect of the proposal would be, he said, to demonstrate the result of latest research work in the field, for the guidance and adoption in practice of local firms. A further meeting is planned for June 2 when the matter will be taken a stage further.

NEW BUILDINGS

Bellshill.—Plans have been approved for Lanarkshire CC scheme of 130 houses (3rd development of the East Parkhead housing scheme). Architect, Samuel MacColl (A), County-bldgs., Beckford-st., Hamilton West.

Earlewood.—Lanarkshire CC has had plans approved for the 6th development of the Quarter Braerd. housing scheme (94 houses). Architect, Samuel MacColl (A), County-bldgs., Beckford-st., Hamilton West.

Glasgow.—Corpn. has had plans approved for two garages at Airth-la. Plans by the Architectural and Planning Department, Council Offices, Glasgow.

Glasgow.—Plans have been prepared for alterations and additions at 630, Keppochhill-rd., Possilpark. Architects, Robert J. Walker & Smith (F), 180, West Regent-st., Glasgow.

Glasgow.—Plans have been prepared for Carswell, Ltd., Argyll-st., for alterations and additions at Union-st. Architect, Colin Hunter, 180, Great Western-rd., St. George's-rd., Glasgow.

Glasgow.—Plans have been prepared for the Scottish Gas Board for building at the Provan Gas Works. Plans by the Chief Engineer, 5, South Hanover-st., George-sq., Glasgow.

Glasgow.—Plans have been approved for new workshops at Langside. Architect, I. Jenner, 384, Tantallan-rd., Glasgow.

Glasgow.—Plans have been approved for new residence, garage and other offices at Quadrant-rd. Architect, R. M. Pitcairn (F), 120, West Regent-st., Glasgow.

Glasgow.—Plans for the Armour Dairy Co., Ltd., have been approved for alterations and additions at Brunton-st. Architects, Robertson, Maclean & Co., 122, St. George's-rd., George's Cross, Glasgow.

Glasgow.—Plans for Robert Paterson & Sons, Ltd., Calton, have been approved for alterations and additions at Charlotte-st. Architect, Magnus Duncan (F), 243, Eglinton-st., Eglinton Toll, Glasgow.

Lanarkshire.—Plans have been approved for garage at Main-st., Chapelhall. Architect, James Wallace (A), 127, Bath-st., Blythswood, Glasgow.

Lanarkshire.—Plans have been prepared for W. M. Wylie, Thorntonhall, for extensions at Wellknowe-rd. Architects, Cullen, Lochhead & Brown (F), 119, Cadzow-st., Hamilton West.

Lanarkshire.—Plans have been approved for new garage, workshops and other buildings at Cambuslang. Architects, Kennedy, Moodie & Co., 121, West Regent-st., Glasgow.

Lanarkshire.—Plans have been approved for Fodens, Ltd., Sandbach, Cheshire, for service station, etc., at London-rd., Tollcross. Plans by West, Anderson & Co., 92, Bath-st., Glasgow.

Lanarkshire.—Plans have been prepared for the NCB, Edinburgh, for extensions, alterations and additions to the pithead baths at Cardownie Colliery, Stepps. Architect, James Allan (F), 58, Palmerston-pl., Westend, Edinburgh.

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from April 18, 1955. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 4s.; Labourers, 3s. 5½d.

For apprentices, the rates are:

Year.	*Percentage of Craftsman's rate.*	*For week of 44 hours.* s. d.
1st	25	44 0
2nd	33⅓	58 8
3rd	50	88 0
4th	66⅔	117 4
5th	75	132 0

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	5½
Operatives on labouring operations (at end of probationary period)	3	2

Scotstown.—Plans have been prepared for Bull's Metal & Marine, Ltd., Glasgow, for new buildings at Bulldale-st. Architects, F. J. Beveridge & Dallachy (A&A), 257, West George-st., Blythswood-sq., Glasgow.

Stirlingshire.—Plans prepared by the firm's architects have been approved for additions (including 220-ft. high cooling tower), which are to be erected at their works at an estimated cost of £120,000, by the British Petroleum Co., Ltd., Avon Hall, Bo'ness-rd., Grangemouth.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

MAY 24.

***†Birmingham City C.**—Three shops and flats, Cross Farm-rd., Metchley Grange estate, Harborne. City A. Dep. £2 2s. Tenders by June 24.

MAY 27.

***†East Suffolk CC.**—Police house at Woodbridge, Debenham and Kirton. County A, Ipswich. Dep. £2 2s. each. Tenders by June 17.

***†Hornsey BC.**—Seven houses and 6 garages, Quernmore-rd., N4. BE&S. Tenders by June 27.

MAY 28.

***†Northampton CBC.**—One shop and dwelling, Sunnyside estate. Boro' A. Dep. £2 2s.

***†Northampton CBC.**—66 flats, Park-drive, King's Heath. Boro' A. Dep. £2 2s.

***†Oxfordshire CC.**—Extensions, etc., to seven schools. County A, Oxford.

MAY 31.

***†Mitcham BC and Merton and Morden UDC.**—Refreshment room, Ravensbury-park, Mitcham. E&S, Morden Hall, SW19. Dep. £2 2s. Tenders by June 20.

JUNE 1.

***†Blackburn CBC.**—Extension, Longshaw school. BE. Dep. £2 2s.

***Ealing BC.**—Pavilion, Lammas Park enclosure, Ealing, and additions to Perivale Park golf pavilion. BE. Dep. £2.

***Morecambe and Heysham BC.**—13 bungalows, Branksome-drive estate. BE&S. Dep. £1.

JUNE 2.

***Glasgow Corp.**—30 flats at Wedderlea-dr.; 6 flats at Cairn-st.; 6 flats at Closeburn-st. Architectural and Planning Dept., 20, Trongate, Glasgow, C1.

JUNE 3.

***Barnes BC.**—16 flats, Mortlake High-st., SW14. BE&S.

***†Isle of Ely CC.**—School adjoining Railway-rd. and Weasenham-la., Wisbech. County A, March. Dep. £5 5s. Tenders by July 9.

***Weymouth and Melcombe Regis BC.**—15 houses, Chapelhay. BE&S, 6, Pulteney-bldgs. Dep. £2 2s.

JUNE 4.

Orrell UDC.—20 houses at Kitt Green estate. S&E. Dep. £2 2s.

JUNE 6.

***Carlisle City C.**—22 bungalows and 16 flats, Morton. City S. Dep. £2 2s.

***Enfield UDC.**—12 garages, Hoe Lane estate. E&S, 7, Little Park-gdns. Dep. £2 2s.

***Woking UDC.**—Six shops with maisonettes over and 2 pairs of houses, Maybury estate. E&S. Dep. £2 2s.

JUNE 7.

Manchester City C.—74 maisonnettes and flats, Wastdale-rd., Wythenshawe; 122 maisonnettes and flats, Langley Middleton; 15 houses, Lightbowne-rd., Moston; 22 maisonnettes and flats, Reather-st., Collyhurst. Director of Housing.

***Morecambe and Heysham BC.**—Dining-room block, cleansing depot, Acre Moss-la. BE&S. Dep. £1.

JUNE 8.

***Accrington BC.**—Crematorium. BE&S. Dep. £2.

JUNE 9.

***Harrow BC.**—Sports pavilion, Newton Farm playing field, South Harrow. BE&S. Dep. £2.

*†**Portsmouth City C.**—Occupation centre, Eastern-rd., and second phase Court-la. infants' school. City A, 1, Western-parade. Dep. £1 each.

*†**Reading CBC.**—Erection of Westwood secondary girls' school. Boro' A.

***Southend-on-Sea CBC.**—Alterations and additions to kitchen, High School for Boys. Boro' A, 30, Alexandra-st.

JUNE 11.

***Cardiff City C.**—278 dwellings, Llanrumney. City S. Dep. £2 2s.

***Gosforth UDC.**—12 flats, Lambert-sq. C. S. Perkins, Clerk.

***Malvern UDC.**—Six shops and 4 flats, Pickersleigh-rd. C. C. Judson, S & Water E. Dep. £2 2s.

***Nuneaton BC.**—68 flats and maisonettes, Meadow-st. BS.

JUNE 13.

***Chigwell UDC.**—Conveniences on two sites. E&S. Dep. £3 3s. each.

***West Hartlepool CBC.**—44 dwellings, Central Area re-development. Boro' A.

JUNE 15.

***Woodstock BC.**—31 dwellings, etc., Green-la. site. H. W. Smith & Son (F/A), 29, George-st., Oxford. Dep. £2 2s.

JUNE 17.

***Barnes BC.**—Extensions, mess room, East Sheen Cemetery, SW14. BE&S.

JUNE 18.

***Sherborne UDC.**—24 houses, Bristol Road. Petter, Warren and Roydon Cooper (FF), The Old Oxford Inn, West Hindford, Yeovil. Dep. £5.

JULY 6.

***Keswick UDC.**—27 houses and one shop with flat over, Latrigg Close housing estate. S. Dep. £2 2s.

NO DATE.

***Wolverhampton CBC.**—153 dwellings, Rake Gate estate. BE. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MAY 26.

*†**Isle of Ely CC.**—Heating and hot water installation, Isle of Ely College of Further Education, Wisbech. County A, March. Dep. £2 2s. Tenders by June 27.

JUNE 4.

***Hayes and Harlington UDC.**—Painting. Charville CP school, Hayes, and William Byrd CP school, Harlington. E&S.

JUNE 6.

***Lincoln (Kesteven) CC.**—Heating installation, Billingborough school. County A, Sleaford.

JUNE 8.

***Brighton CBC.**—Heating installation, 26-30, King's-rd. BE&S, 26-30, King's-rd. Dep. £1 1s.

***Great Yarmouth CBC.**—Re-tiling roofs of Priory Schools, Priory Plain. Schools Architect, 22, Euston-rd. Dep. £1 1s.

JUNE 10.

***Bournemouth CBC.**—Supply of classroom and staff room lockers for West Howe infants' and junior schools, also blinds, curtains and track, etc. Boro' A (Room 106). Dep. £2 2s.

JUNE 13.

***Birmingham City C.**—Central heating, etc., Aged Persons' Home, Alvechurch-rd., West Heath, Birmingham 31.

JUNE 14.

***West Hartlepool CBC.**—Fencing and gates, Rossmere Park. Boro' A.

JUNE 17.

***Rochdale CBC.**—Heating installation, Boys' Technical School, Nelson-st. BS.

NO DATE.

***Forestry Commission.**—External painting 33 houses near Brandon, Suffolk. Forestry Commission, Brooklands-ave., Cambridge.

ROADS, SEWERAGE AND WATER WORKS

JUNE 3.

†**Brackley RDC.**—Laying 1,100 yds. of sewers and construction of sewage disposal works, pumping stn., etc. Howard Humphreys and Sons, Victoria Stn. House, Victoria-st., SW1. Dep. £3 3s.

†**Brackley RDC.**—Laying 2,000 yds. of sewers and construction of sewage disposal works, pumping stn., etc. Howard Humphreys and Sons, consulting engrs., Victoria Stn. House, Victoria-st., SW1. Dep. £3 3s.

†**Towcester RDC.**—33 miles of asbestos cement mains and 100,000 gal. r.c. reservoir. Howard Humphreys and Sons, consulting engrs., Victoria Stn. House, Victoria-st., SW1. Dep. £3 3s.

JUNE 4.

***Bromley BC.**—Concrete paths, Southborough, Turpington and Hayes estates. Property Manager. Dep. £2.

JUNE 6.

Irlam UDC.—Boring 2,500 lin. ft. in 80 bores. E&S. Dep. £2 2s.

JUNE 7.

Sedgley UDC.—Surface dressing of about 37,000 sq. yds. roads. E&S.

JUNE 9.

Axbridge RDC.—Construction of Locking sewerage scheme. Council's E. West-st. Dep. £4.

East Suffolk and Norfolk River Bd.—Reconstruction of quay fronting River Wensum, new Foundry Bridge, Norwich. Chief E. Dep. £5 5s.

JUNE 10.

Buxton BC.—Reconstruction of King's-rd. BE. Dep. £2 2s.

JUNE 11.

Dorking RDC.—Sewerage and sewage disposal works at Heacham, King's Lynn. Scott and Wilson, Kirkpatrick and Ptnrs., engineers, 47, Victoria-st., SW1. Dep. £5 5s.

JUNE 13.

Bournemouth CBC.—650 ft. of r.c. sea wall and promenade, 3 r.c. groynes (about 150 ft. long). BE. Dep. £1 1s.

Gipping RDC.—Two 250,000 gal. r.c. water towers. Lemon and Blizard, engineers, 59, Tufton-st., Westminster, SW1. Dep. £5 5s.

Luton BC.—Extensions to sludge plant, sewage works. BE. Dep. £2 2s.

JUNE 23.

Blofield and Flegg RDC.—Contract No. 8, water supply on the North-Eastern sector. John Taylor and Sons, engineers, Artillery House, Victoria-st., Westminster, SW1. Dep. £5.

JUNE 30.

Cambridge City C.—Stage 1 of sewage disposal works extensions. City E&S. Dep. £5 5s.

JULY 6.

Bournemouth CBC.—R.c. piled foundation to carry building at head of Bournemouth pier. BE. Dep. £1 1s.

GENERAL BUILDING WORK

(LONDON)

Greenwich.—SITE ACQUISITION.—MBC are recommended to acquire the sites of Nos. 1-23 (odd), Ormiston-rd. which could be used for the erection of eight houses; also the " Princess Sophia " Beer House, 18, Airy-st., which is included in the Coldbath-st. housing site.

Kensington.—DEVELOPMENT.—Hsg. Com. recommendation that approval be given to revised plans prepared by Boro' A for the demolition of Nos. 1-11 (cons.), 1a and 13-19 (cons.), Lonsdale-mews and 9a, Lonsdale-rd., and the redevelopment of the sites by the erection of costermongers' stores and stable units. The amended accommodation would provide five single stables, manure store, three double stables, three small stores, four large stores, refuse stores and lavatory accommodation. The estimated cost of the scheme is about £12,000 and tenders have not yet been invited.

Mitcham.—FIVE-YEAR PROGRAMME.—Five-year programme of development schemes costing nearly £500,000 is being sent to MH&LG by BC. It includes two £55,000 community centres, the first stages of a new town hall and civic centre, a children's swimming pool, a by-pass, and the modernisation of the borough's street lighting. These are in addition to a £1,768,000 five-year scheme to redevelop the Phipps Bridge area and provide 636 new homes. This work is due to start this year.

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Southwark.—FLATS, SHOPS.—The erection of 88 flats and 11 shops in one eight-storey block and one three-storey block, together with garages, workshops and stores on a site bounded by Great Suffolk-st., Stone End-st., Collinson-st., and Southwark Bridge-rd. has been proposed by V. Wilkins, 12, York-bldgs., Adelphi, WC2, on behalf of the Corporation of London—Bridge House Estates. TP consent has been given in general principle.

Southwark.—PRINTERS' WORKS.—The erection of a building to be used for printing and lithography has been proposed by Field & Sons, surveyors, 54, Borough High-st., SE1, on behalf of Smith & Young, Ltd. The building will be erected on a site at the north-east corner of Sumner-st. and Emerson-st., and TP consent has been given.

Southwark.—SERVICE STATION.—Proposals by T. P. Bennett & Son, architects, 43, Bloomsbury-sq., WC1, for the erection of a petrol filling and service station on behalf of Pickering and Dyer, Ltd., have been given TP consent.

Southwark.—OFFICE ALTERATIONS.—TP approval has been given to proposals by J. Sainsbury, Ltd., Stamford-st., SE1, for extensive alterations and additions to their premises at 3-15, Stamford-st., Wakefield House, Rennie-st., and 18-23, Blackfriars-rd.

Southwark.—BUILDING.—The erection of a new building on the site of No. 36, New Kent-rd., proposed by Horne & Co., surveyors, 18-19, Ironmonger-la., EC2, on behalf of A. J. Hill, Ltd., has been given TP permission.

Southwark.—CONVERSION.—Proposals by Drivers, Jones & Co., surveyors, 7, Charles II-st., SW1, on behalf of the Corporation of Trinity House, for the uniting of four existing dwelling houses in Trinity Church-sq., and their conversion into a total of nine self-contained flats, has been given TP consent.

Southwark.—SERVICE STATION.—Proposals have been made by Shingler and Risdon, 47, Bedford-row, WC1, for the erection of a petrol service station at Nos. 33-63, New Kent-rd.

Southwark.—BAKERY.—The erection of a bakery and offices on the site of 77-85, Newington-causeway has been proposed by G. McLean and Ptnrs., architects, 34, The Mall, W5, on behalf of Moo-Cow Bars, Ltd., and TP approval has been given.

(PROVINCIAL)

Ashington.—UDC to build eight houses on Beamsley-ter. site. Plans by surveyor.

Ashton-under-Lyne.—BC approved plans: New canteen at Virginia House, Cedar-st., for J. A. Pattreiouex, Ltd.; new parsonage in grounds of St. Peter's Church, Manchester-rd., for Church Commissioners.

Barnard Castle.—J. Lawton, RDC A, 45, Galgate, prepared layout plans for 84 houses on Red House estate, Etherley.

Barrow-in-Furness.—BC approved plans for erection of 102 houses at Margate-st. housing site.—Erection of two-storey block of six shops and flats at Lesh-la.

Billingham-on-Tees.—ICI, Ltd., to carry out additions to their West Gate canteen.—British Titan Products, Ltd., to extend their main offices in Haverton Hill-rd. and prepared own plans.—Durham CC to erect family group house in Gainford-rd.—Housing sub-committee considering contract with Wimpey & Co., Ltd., Newcastle, to erect 400 " No Fines " houses during next two years.

Birkenhead.—£1m. factory scheme proposed at Bromborough. Scheme put forward by North-West Industrial Estates, Ltd., Government agency, and backed by Bebington Council. If scheme is approved, it is hoped to start building factory within three months and to commence production by October, 1956. Sir Alfred Shennan, of Liverpool, is architect for the scheme.

Birmingham.—Reg. Hosp. Board approved additions and alterations at Warneford Hospital, Leamington Spa, £74,000 est.; two 50-bed wards at Stallington Hall Hosp., £85,937 est.; nursing staff accommodation at Good Hope Hosp., Sutton Coldfield, £51,387 est.—Boilerhouse and engineering plant at Shelton Hosp., Shrewsbury, £51,500 est.—TC to sell site at Lawley-st. to Harvo, Ltd., for erection of premises.—Birmingham and Midland Motor Omnibus Co., Ltd., propose erection of garages at Stafford, South Wigston, near Leicester, and Leamington Spa. Company have own architectural department.

Bridlington.—TC to invite tenders for 52 houses at Westhill estate.

British Railways.—BR building programme states that new Ripple-la. railhead depot for freight, est. cost £190,000, will be started next year. New goods yard will be constructed in Southern Region at Crawley, cost £190,000, and additional improvement schemes are proposed to goods stations at Manchester (Ancoats), Lincoln, Dundee, Southampton and Slough, at total cost of £500,000. Road motor maintenance workshops at Birmingham, Liverpool (Huskisson) and Slough will be improved at cost of nearly £250,000. Programme also includes widespread rebuilding of out-of-date stations, and it is hoped work will start on first instalment (reconstruction of goods depot) of rebuilding Peterborough Station in 1956. Another improvement scheme to be put in hand during next two years is improved accommodation for passengers at Manchester (Victoria). Other schemes which will start in the next two years are those for Barrow (Central), Cannon-st. Station (replacement of roof and lengthening of platforms, to cost £1,280,000), and Banbury, Glasgow (Central), Chichester, Weymouth and Gatwick Airport.

Bury.—TC propose erection of 80 houses at Huntley Fold estate, and to negotiate with Middleton

& Co. (Blackpool), Ltd., Bank-st. Sidings, Blackpool, for erection of 46 houses at Walmersley Estate.—Approved plans for erection of new RC church at Harvey-st., Elton, to replace present Guardian Angels Church for Rev. Father J. Rector.

Carlisle.—W. Gibson & Son propose transport depot on Durranhill industrial estate.—Johnston and Wright, Castle-st., architects for offices and loading dock at London-rd. bacon factory for Cavaghan and Gray, Ltd., and building for repair, sale and storage of tractors near East Nelson-street for County Garage Co., Ltd.

Coventry.—TC to negotiate tender with Geo. Wimpey & Co., London, for 748 dwellings, also hostel at Wood End Neighbourhood Unit.

Crick.—PC Council of St. Margaret's Church propose repair scheme, £10,000 est.

Crompton.—UDC propose extensions to Town Hall.

Crook and Willington (Co. Durham).—UDC to erect 50 houses on Hall-la. estate, Willington, 40 houses at Hunwick and four shops and flats on Wear Valley estate, Willington. Council's A, Page, Son and Hill, 75, King-st., South Shields.

Darlington.—TC to convert Blackwell Grange into offices and let them to MoW.

Derbyshire.—CC Ed. Com. received approval for inclusion in 1955-56 programme: Hope Valley Sec. Mod. Sch. (£103,152); Dronfield Sec. Sch. (£30,800).—1956-57 programme includes: Hackenthorpe Sec. Sch. (£56,700); Chesterfield Whittington Sec. Sch. (£93,500); Bakewell Lady Manners Sch. extensions (£60,000); Frecheville Jun. Sch. (£51,392); Staveley Sec. Sch. (£145,860); Chesterfield Violet Markham Sch. extensions (£65,414); Heanor Sec. Sch. (£78,250); Ripley Sec. Sch. (£140,250); Darley Dale Sec. Sch. (£134,970); Heath Sec. Sch. (£103,152).

Drayton.—RDC propose erection of 40 houses at Childs Ercall.

Dublin.—Corpn. adopted draft town planning scheme which, over 40 years, is est. to cost £17,900,820. Time extension sought to consider objections to plan before it is submitted to Minister for Local Government for approval. City Manager, Dr P. J. Hernon, has given following estimates: *Acquisition costs*—first 8 years, £1,114,000; second 8 years, £1,709,800; third 8 years, £1,527,700; fourth 8 years, £835,000; fifth 8 years, £2,007,700; *construction of roads*—£4,506,620; *bridges*—£1,200,000; *housing acquisition*, central area—£5m.

Durham.—County Ed. Com. received approval to building of a technical college at Durham and building of instalments of new technical colleges at Easington and Consett. Plans by G. R. Clayton, County A.

Durham.—City C to approach Durham CC regarding possibility of building library and health centre in Sunderland-rd.

Durham.—Community centre, cost £10,000, to be built in Leam-la. by CC. Plans by County A, G. R. Clayton, Court-la., Durham.

Felling-on-Tyne.—It is proposed to build cinema on site in Leam-la. Plans to be prepared by Stephenson and Gillis, Saville-chbrs., North-st., Newcastle-on-Tyne.

Fleetwood.—TC to prepare sketch plans for Marine Pavilion.

Harrogate.—Board of Governors of Ashfield College propose extensions to premises, £80,000 est. Architects, Needham, Thorp and White, 6, High Petergate, York.

Hebburn (Co. Durham).—UDC's housing plan for Monkton-la. No. 2 Area been revised to provide for 100 houses. 12 flats and eight aged people's houses. Surveyor, R. C. Bestow.

Hebburn-on-Tyne.—UDC to sell 7½ acres of land to A. Reyrolle & Co., Ltd., electrical engineers, for development and erection of factories. Company's A, Cackett, Burns, Dick & McKellar, 21, Ellison-pl., Newcastle.

Kidderminster.—TC approved plans for development of housing estate at Summerhill for J. & R. Perrin, Ltd., Sutton-rd., Kidderminster.

Lancs.—CC approved estimate of £153,210 for Eccles RC Sec. Sch. Seek Min. approval for following schools in 1956/7 programme: Fleetwood Grange-rd. Cty. Inf. and Jun., phase 1, £44,800 est.; Penwortham Kingsfold Cty. Jun., 1st instalment, £30,414 est.; Rawtenstall Lomas-la. Cty. Inf. and Jun., £44,800 est.; Bacup Fearns Cty. Sec., 1st instalment, £147,262 est.; Adlington and District C of E Sec., £140,250 est.; Chorley RC Sec. for Boys, 1st instalment, £105,792 est.; Hindley RC Sec., £140,250 est.; Kirkby Park Brow Cty. Jun., Phase 2, £80,000 est.; Kirkby Westvale Cty. Jun., Phase 2, £51,392 est.; Kirkby St. Joseph's RC Jun., Phase 2, £80,000 est.; Kirkby, Westvale RC Inf. and Jun., £44,968 est.; Kirkby Northwood RC Inf. and Jun. No. 1, £128,480 est.; Kirkby St. Laurence's RC Sec. for Boys, extensions, £46,750 est.; Kirkby St. Laurence's RC Sec. for Girls, extensions, £46,750 est.; Kirkby Cty. Sec. Gram. Tech., £190,000 est.; Worsley Brvn Farm RC Inf. and Jun., £44,968 est.; Worsley Peel Hall Cty Inf. and Jun., £89,936; Worsley Burgess Farm RC Sec., £93,500 est.; Radcliffe Bolton-rd. Cty. Inf., Phase 1, £40,150 est.; Whitefield Stand Gram. for Boys (6 classrooms, 1 art room and conversion works), £30,000 est.; Whitefield Stand Gram. for Girls (5 classrooms, 3 craftrooms, 1 kitchen/dining room and adaptations), £50,000 est.; Middleton Langley Cty. No. 3 Inf. and Jun., £44,968 est.; Middleton Langley RC No. 2 Inf. and Jun., £44,968 est.; Middleton Hollin Cty Sec., £140,250 est.; Middleton Langley RC Sec., £93,500 est.; Urmston Woodsend Cty. Inf. and Jun., £44,968 est.; Chadderton Gram./Tech., £168,300 est.; Chadderton Nimble Nook Cty. Sec., £93,500 est.; Droylsden Fairfield High Sch. for Girls 2 classrooms, 1 housecraft room and 1 laboratory), £20,020 est.; Mossley Micklehurst Cty. Jun., 1st instalment, £30,400 est.; Widnes S.S. Fisher and More RC Sec., £140,250 est.; Coniston Cty. Sec., 1st instalment, £97,872 est.; Carnforth Cty. Sec., 1st instalment, £134,970 est.; Lytham St. Annes RC Sec., 1st instalment, £97,872 est.; Longridge Co. Sec., 1st instalment, £97,872 est.; Tarleton/Hoole Cty. Sec., £100,512 est.; Walton le Dale RC Sec., 1st instalment, £105,792 est.; Croston C of E Sec., 1st instalment, £97,872 est.; Aspull Cty. Sec., 1st instalment, £97,872 est. County A, G. Noel Hill, County Hall, Preston.

Leamington Spa.—TC approved amended layout for Brook-st. housing site.

Lichfield.—RDC approved erection of television mast and accompanying buildings on site either at Gentleshaw or Hints for Independent Television Authy.

Litherland.—UDC propose erection of 18 houses between Church-rd. and Moss-la.

Longbenton.—Gibson Readymixed Concrete, Ltd., Gosforth, been allocated site at Holystone for construction of factory.

Manchester.—Manchester Central British Legion Branch propose erection of new British Legion Club at corner Falmouth-st./Wedgewood-st., Miles Platting. Plans by Shark and Cowburn, 40, South King-st., Manchester.—Wrights Packers & Shippers, Ltd., Travis-st., Manchester, 1, propose single-storey office extension to packing warehouse. Architects, Drury and Gomersall, Roxy Cinema, Oxford-st., Manchester.

Manchester.—William Younger & Co., Ltd., propose extensions and alterations to "Bristol Inn," 52, Bristol-st., Hulme. Plans by own architect's department.—Shop Developments Group of Companies propose erection of six-storey block of offices with shops at St. Mary's Gate and Exchange-st., Manchester, 1. Architects, J. Seymour Harris & Ptnrs., 4, Greenfield-cres., Birmingham, 15.—G. & A. Heighway, Ltd., propose erection of warehouse and factory at Camp-st./Severn-st., Manchester, 3. Architects, S. S. Sessions, 5, Priory-pl., Doncaster.—Leek and Moorlands Building Society, Ltd., propose conversion of existing shop and business premises into offices at 41, Princess-st., Manchester. Architects, Samuel Morrison & Ptnrs., 103, Belper-rd., Derby.

Mansfield.—TC approved scheme for sports stadium at Fisher-la.

Morpeth.—Alterations and additions proposed to Morpeth Cottage Hosp. for Newcastle Hosp. Board, cost about £24,000. Quantities to be prepared. Board's Chief A, P. H. Knighton, "Dunira," Osborne-rd., Newcastle-on-Tyne.

Newcastle upon Tyne.—Callers, Ltd., Northumberland-st., to construct showrooms, shopfronts and canopy at furniture stores. Architect, C. Solomon, St. Mary's-pl.—P. L. Browne, Son & Harding, Pearl-bldgs., architects for warehouse in St. Andrews-st. for A. Bradnum & Son.—Novobiles (Newcastle), Ltd., Newington-rd., to construct showrooms at their premises and had plans approved.—Plans by E. W. Lawson, Barras-bldgs., Barras Bridge, for motor showrooms and offices in St. Mary's-pl. for W. Whiteman been approved.—Layout plans for 131 houses on North Kenton Estate been approved. Plans by City A, G. Kenyon, 18, Cloth-market.—Workshop and factory in Eldon-la. to be reconstructed for J. Purves after fire damage. Architect, G. R. Kiddell, 3, Silver Lennen.—Ernstone & Son, Ltd., Blandford-st., to extend their factory. Plans by M. Gatoff, 25, Trafalgar-st.—Plans for 10 houses in Greenside-cres. for Wilkinson & Topping, Ltd., approved. Architect, J. Moffatt, Cheviot-view, Ponteland.—Imperial Tobacco, Ltd., to build sports pavilion at firm's recreation ground, Coast-rd. Plans by Engineering Dept., Imperial Tobacco Co., Eastside, Bristol.—R. Bowey & Son, Great North-rd., to build 19 houses in Reedsmouth-pl. Plans by Dryden & Shaw, Market-st.

Northallerton.—Nurses' hall, cost £11,000, to be built at Friarage Hosp. Plans to be prepared by P. H. Knighton, Chief A to Newcastle Hosp. Board, "Dunira," Osborne-rd., Newcastle-on-Tyne.

Northampton.—Tandy & Richmond, Ltd., Pitsford Brickworks, received approval for development of housing estate at entrance to Boughton Village.—RDC approved layout for 46 dwellings at Billing Hall estate, Great Billing, for Northampton Brewery Co.

Northumberland.—M of E approved erection of secondary schools at Ponteland, Morpeth, North Sunderland, Alnwick and Tweedmouth, in connection with 1955-56 building programme. Private A to be appointed for schools at Morpeth, Alnwick and Tweedmouth.—County Civil Defence Com. approved revised scheme for construction of county training centre at Morpeth. Est. cost reduced from £102,000 to £55,999. Scheme submitted to Home Office. County A, C. C. Brown, County Hall, Newcastle-on-Tyne.

Otley.—UDC propose erection of further 20 houses.

Preston.—RDC to invite tenders this year for erection of 100 houses.

Prudhoe (Northumberland).—Tenders expected to be obtained in autumn for first stage of large development scheme at Prudhoe and Monkton Hosp., to be undertaken by Newcastle Hosp. Board. P. H. Knighton is the Board's Chief A, "Dunira," Osborne-rd., Newcastle. QS, Barrett, Sons and Ptnrs., 17, Brunswick-pl., Newcastle-on-Tyne.

Richmond (Yorks).—RDC's £66,185 scheme for construction of 52 houses at Scorton been approved by MH&LG. Council's S, J. T. Powell.

Scarborough.—TC to obtain tenders for erection of 53 houses and 12 old people's flats at Eastfield.—E. Allen, 32, St. Nicholas-st., prepared plans for church hall in Auborough-st., and two blocks of flats in Stepney-cl. for A. W. Sinclair & Son, Ltd., Scarborough.—TC received loan sanction for £7,302 for six houses in Wreyfield-dr., and £12,960 for erection of houses and flats at Longwestgate and on Ebenezer Baptist Chapel site.—BE, H. V. Overfield, prepared revised plans and estimates at £14,584 for proposed street works.

Seaham.—Durham CC plan new library at Seaham under 1956-7 building programme. County A, G. R. Clayton, Court-la., Durham.

Sheffield.—TC approved sketch plans by City A. for erection of shop premises at Gleadless Valley estate.

South Shields.—TC to build 134 more houses by contract. Plans by BE, J. Reid.

Stafford.—TC to sell 28-acre site at Riverway to English Electric Co., Ltd., for erection of new conference hall.

Stanley (Co. Durham).—UDC to carry out slum-clearance plan involving demolition of over 360 sub-standard houses. About 60 houses in Lintz area will be first to be dealt with.

Startforth.—RDC to invite for second time tenders for six houses at Bowes. Architects, Messrs. Richardson and Shaw, Darlington.

Stockport.—BC propose extensions to Town Hall. £120,000 est. Work to commence within next six months.

Stockport.—TC to invite tenders for 20 houses with garages at Barnfield-rd. estate. To negotiate with Geo. Wimpey & Co., Ltd., for eight flats and four maisonettes to complete first stage of York-st. clearance area.—Stockport Lads' Club propose erection of new club premises at Hempshaw-la., £10,000 est.—TC approved plans for proposed Brimmington Mount Hosp., Brinnington.-rd., for F. Robinson, Ltd., Unicorn Brewery, Stockport. Architects, Gilbert Bullimore, Lloyds Bank-chbrs., Great Underbank, Stockport.

Stockton.—TC approved plans and estimates by BS, G. Cowan, for reconstruction of cattle market on new site, cost £33,000.

Stockton-on-Tees.—Portrack Social Club seek site for new premises.—TC seek loan sanction £56,561 for erection of 25 houses and 18 flats on Newtown housing site.—Stockton Co-op. Society, Wellington-st., Stockton, seek site in Redhill-rd. for erection of shop premises.—Moorhouse and Barker, Ltd., builders, Thornaby, to erect houses in Bishopton-rd. West.—Yorks. Hennebique Contractors, Ltd., 123, The Mount, York, seek permission to use land at junction Haverton Hill-rd./Tees Bridge-rd. for concrete production.

Sunderland.—Dental out-patient to be built at General Hosp. Plans by P. H. Knighton, "Dunira," Osborne-rd., Newcastle-on-Tyne.

Sunderland.—Inquiry to be held into TC's £260,000 scheme for construction of abattoir at Fulwell. Boro' A, H. C. Bishop, Grange House, Stockton-rd.—M of E confirmed compulsory purchase order in respect of land in Ryhope-rd. needed by EC for construction of secondary/technical school for 600 boys, cost about £217,000. Boro' A, H. C. Bishop, Grange House, Stockton-on-Tees.—British Ropes, Ltd., Abbotts-rd., Gateshead, to build new warehouse in Fulwell-rd., and seven houses expected to be demolished to make way for scheme. Work not likely to be started for some months.

Sunderland.—TC seek loan sanction for £130,380 for erection of 107 houses at Farringdon.

Sunderland.—British Ropes, Ltd., propose to extend warehouse in Fulwell-rd., which will involve demolition of seven houses.

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Tynemouth.—Ed. Com. to obtain land as site for county college. BS and A, D. M. O'Herlihy.

Tynemouth.—Revised plans approved for developing Monkstone Estate, Broadway. Builders, Woodall & Co., Cullercoats.—Haswell & Son, 20, Northumberland-sq., North Shields, prepared revised plans for Ingleside Estate. Builder, T. H. Rigy, 11, Parkside, Tynemouth.—De La Rue, Ltd., to extend their factory to plans by Turnbull & Ptnrs., 29, Ludgate-hill, EC4.—Proposed St. Cuthbert's RC Sec. Mod. Sch. to be erected in two stages. Revised plans being prepared.

Walsall.—Wilmot Breeden, Ltd., Camden-st., Birmingham, propose erection of factory premises at Fryers-rd., Bloxwich.

West Hartlepool.—TC to obtain tenders for erection of 44 houses in connection with central area redevelopment scheme. Boro' A, A. G. Sinclair, Municipal-bldgs.

West Hartlepool.—TC been recommended to include in its building plans for next few years £280,000 scheme for construction of transport depot. BE, J. Stanley Miles.

West Hartlepool.—R. H. Duns, Lambton House, Lambton-rd., Newcastle-on-Tyne, been appointed QS by EC for proposed Owton Manor Cty. Prim. Sch.; and Cairns and Byles, Osborne-rd., Newcastle, been appointed heating and electrical consultants.

Wharfedale.—RDC approved plans for Governor's residence at Children's Home, Bramhope, for trustees; village hall at Arthington-la., Pool, for Village Hall Com.

Wolverhampton.—TC approved plans: Erection of new premises at Cleveland-st. for G. H. Turner & Co., Ltd., Bell-st. Architects, Cleland & Haywood, Waterloo-rd.

Workington.—BC approved plans: Rebuilding of Hippodrome Cinema for MBC Cinemas. Plans by N. M. Philips, 43, Oxford-st.

TENDERS

* Denotes *accepted*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
‖ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Ayr.—Flats at the Craigie housing scheme. Architects, Gowie & Terry, Wellington-sq., The Sandgate, Ayr: *Weirs Housing Corporation, Calder-st., Whifflet, Coatbridge, £62,839.

Ayrshire.—Seventh development of the Kilmarnock Bellfield housing scheme (50 houses). Architect, N. S. Sutherland. BS, W. H. MacColl, Master of Works Offices, Municipal-chbrs., Kilmarnock: *The Lanarkshire Builders, Ltd., Mossend, Bellshill.

Bebington.—126 houses at Mill Park estate, Eastham, for TC: *Unit Construction Co., Ltd., Liverpool, £177,766.

Birmingham.—Tenders accepted by House Building Committee, City A's Dept., during February and March:—

17 shops, 18 dwellings and office accommodation, Heathway, Shard End Estate, *J. & P. Kelly & Co., £79,925; 15 shops and flats, Bunbury-rd. Estate, Northfield, *C. Bryant & Son, Ltd., £59,850; (119). Bath-row redevelopment area units 302,304 (part) and 305 (part). *Alfred Langley, Ltd., £256,911; (210), Kitsland-rd., Shard End Estate, *W. J. Simms, Sons & Cooke, Ltd., £530,919; (5), Katie-rd., Selly Oak, *Richards & Wallington, Ltd., £6,421; (6), Robert-rd., Handsworth, *Stubbs Bros. (Handsworth), Ltd., £7,428; (12), Greenway-st., Small Heath, *Geo. Stubbins, Ltd., £17,694; (6), Woodvale-rd., Yardley Wood, *W. J. Whittall & Son, Ltd., £9,841.

Bootle.—Gas service centre at 343, Stanley-rd., Bootle, for North Western Gas Board: *Molyneux (Liverpool), Ltd., New Court-bldgs., Sir Thomas-st., Liverpool.

Border.—80 houses at the Blackwell estate for RDC: *Thos. Armstrong & Co., Ltd., Keswick, £91,808.

Bradford.—192 flats at Thorpe Edge estate for TC: *John Laing & Son, Ltd., London, £405,572.

British Railways (London Midland Region).—British Railways (London Midland Region) announce that the following contracts have been placed:—

With *W. R. Payne & Sons, Lingerfield, Nab Wood, Shipley, Yorks, for labour only for the cleaning and painting of Hollinwell and Annesley passenger station and Annesley motive power depot. With *The Butterley Co., Ltd., Butterley, near Derby, for the widening of bridge No. 191 over Liverpool-rd. at Irlam on the Liverpool to Manchester line (former CLC) for the Lancashire Steel Corporation. With *L. Fairclough, Ltd., 3, Chapel-st., Adlington, Lancs, for formation renewal and drainage on the up and down fast lines at Farington between 19 miles 581 yards and 19 miles 1,191 yards. With *Demolition & Construction Co., Ltd., 3, St. James's-sq., SW1, for the replacement of 20-ton Goliath crane by a 10 tons capacity electric gantry crane at St. Pancras goods depot. With *Bush & Son, Ltd., New-st., Alfreton, Derbyshire, for the removal of redundant track and structures on the Downholland branch.

Buxton.—Conversion of Corbar Hall into maternity unit for Manchester Regional Hospital Board: *John Royle, Market-st., Buxton, £11,025.

Carlisle.—Erection of 10 brick garages, Shadygrove-rd., for CBC: *John Laing & Son, Ltd., Carlisle, £1,292.

Clackmannan.—Housing, Alloa-rd./Kirk Wynd, Clackmannan, for County C (25 traditional houses). Mason and brickwork: *David Anderson, Eastbank, Crossford, by Dunfermline. Carpenter and joiner work: *John Gow & Sons, Main-st., Sauchie. Glazier work: *W. H. Gray (Glaziers), Ltd., 32, Coalgate, Alloa. Roof tiler and roughcast work: *D. & J. Ogilvie (Builders), Ltd., Park-terr., Stirling. Plumber work: *Byard & Co. (Plumbers), Ltd., 82, Haymarket-terr., Edinburgh, 12. Plaster work: *D. & J. Ogilvie (Builders), Ltd., Park-terr., Stirling. Electrical work: *A. M. Todd, Stirling-st., Tillicoultry.

Coventry.—Adaptations to central kitchen at Baginton Fields Schools for TC: *Daly & Sons, 6, Stoney Stanton-rd., £8,416.

Darlington.—74 houses on the Branksome Estate, for the TC. Boro' A, E. A. Tornbohm: *R. Blackett & Sons, Bondgate, Darlington, £98,945.

Dunbartonshire.—24 flats for the aged, to be erected at £1,057 each, at Drummond-rd., Drumchapel. Architect, Archibald G. Jury, Housing Department, Glasgow Cross, The Trongate, Glasgow: *Athol Houses, Ltd., Bunfallen-dr., Paisley-rd., Glasgow, £39,358.

Eston.—34 houses on the Crossbeck Estate, for the UDC. Surveyor, N. C. Harrison: *C. M. Yuill, Ltd., Villiers-st., West Hartlepool.

Eston.—16 houses on the Crossbeck Estate, Normanby, for the UDC. Surveyor, N. C. Harrison: *W. J. Emmerson, North Ormesby, Middlesbrough, £19,956.

Glasgow.—744 houses at Castlemilk housing development area. Architect, Archibald G. Jury, Housing and Architectural Dept., Glasgow Cross, The Trongate, Glasgow. Unit No. 4, 224 houses: *James Crawford & Sons, Ltd., 14, Woodside-terr., Woodlands-rd., Charing Cross, Glasgow, £315,842. Unit No. 2, 204 houses: *John Lawrence (Glasgow), Ltd., 137, West Regent-st., Glasgow, £294,997. Unit No. 11, 180 houses: *Melville, Dundas & Whitson, Ltd., 21, Blythswood-sq., Glasgow, £262,312. Unit No. 5, 70 houses: *A. A. Stuart & Sons (Glasgow), Ltd , 7, Fitzroy-pl., Sauchiehall-st., Charing Cross, Glasgow, £101,732. Unit No. 4, 66 houses: *Mactaggart & Mickel, Ltd., 147, West Regent-st., Glasgow, £94,481.

Greenock.—12 flatted houses and eight cottages at site 2, "F" and "G" developments, at Larkfield housing scheme. Architect, Robert L. Rankine, Master of Works Offices, Municipal-bldgs., Greenock: †Mactaggart & Mickel, Ltd., 895, West Regent-st., Glasgow.

Harpenden.—30 houses, Batford (South) estate, for UDC. Engineer and Surveyor, H. Pettingale, AMICE, etc., Harpenden UDC, Harpenden Hall, Harpenden, Herts. Quantities by Mr. H. L. Hale, 31, St. John's-hill, SW11:—

Davies & Rentowl, Ltd., Victoria-st., St. Albans	£51,223
S. & T. Harvey & Co., Ltd., 17, Kingsley-rd., Luton	47,885
Dunham Builders, Ltd., 69, Victoria-st., St. Albans	46,428
Dorset Building Co., Ltd., Mill-la., South Chailey, Lewes, Sussex	44,795
*Stevenson-Spence, 3, Arden-gr., Harpenden	44,710

Hereford.—Crematorium, Westfaling-st., for City C. City Surveyor, F. Margerison, AMICE, MIMunE, MIWE, Town Hall, Hereford. Quantities by George Laing & Young, 17a, Newmarket-st., Hereford: †Bayley Bros. (Hereford), Ltd., Cotterell-st., Hereford, £12,103.

Ince-in-Makerfield.—20 houses at Battersby Street site for UDC: *J. Gaffney & Son, Whelley, Wigan, £2,826 and £2,784 per pair.

Leeds.—Alterations and adaptations to St. Chads Hostel, Hollin-rd., Headingley, for the TC: *Walter G. Birch (Harrogate), Ltd., Montpellier House, Harrogate, £62,849.

¶London (Admiralty).—Particulars of contracts over £1,000 in value:—

Hants: Structural steelwork, Robert Watson & Co. (Constructional Engineers), Ltd., High-st., Bolton, Lancs; grass seeding, Surface Maintenance Services, Ltd., 124, Old Christchurch-rd., Bournemouth; thermal insulation linings, Jenkins & Sons, Ltd., 76, The Hundred, Romsey, Hants; low-pressure hot water heating system, Mumford Bailey & Preston, Ltd., 22a, Holdenhurst-rd., Bournemouth; repairs and maintenance, John Hunt, Ltd., South Wharf, Cleveland-rd., Gosport. *Renfrewshire:* Additions and alterations to jetty, Robert Johnston, 31, Main-st., Greenock. *Fife:* Building work, Colin Morris & Son, 7, Preston-cres., Inverkeithing. *Devon:* Structural steelwork, South Durham Steel & Iron Co., Ltd., Malleable Works, Stockton-on-Tees.

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¶London (Air Ministry).—Contracts placed by the Directorate of Contracts for the week ended May 14:—

Building work: James Miller & Ptnrs., Ltd., 81, Great-st., Edinburgh; T. Oliver (Builder), Ltd., St. Martin's-pl., Worcester; G. W. Beretta (Anglesey), Ltd., Station-rd., Rhosneigar, Anglesey; C. Jenner & Son, Ltd., 5, 7 and 9, Bouverie-rd. East, Folkestone. *Resurfacing of runways:* General Asphalte Co., Ltd., Grafton-rd., London, NW5. *Installation of fire sprinkler:* Mather & Platt, Ltd., Winchester House, Victoria-sq., Birmingham, 2. *Construction of sports field:* The Pipewell Ploughing Co., Ltd., 1, Middlepavement, Nottingham. *Artificers' work:* William Sindall, Ltd., Gloucester-st., Cambridge; Y. J. Lovell & Son, Ltd., Marsham-la., Gerrards Cross, Bucks; H. G. Ross & Sons, Ltd., Victoria-rd., Netley Abbey, Southampton; S. Cronin & Sons, Ltd., 161-163, Warley-hill, Brentwood, Essex; Fred Pearson & Co., Ltd., 32, Cemetery-rd., Doncaster, Yorks; Willcocks & Stephens, Ltd., Lower Polsham-rd., Paignton, Devon; M. & F. O. Foster & Co., Ltd., York-rd., Hitchin, Herts; Thomas C. Stewart (Contractors), Ltd., 42, Museum-st., Ipswich; F. R. Hipperson & Son, Ltd., Invicta House, Wantz-rd., Dagenham; Thomas Broad, Ltd., Graham Works, Malvern; C. P. Unwin & Sons, Ltd., 33, St. Peter-st., Tiverton, Devon; Orkney Builders, Ltd., Great Western-rd., Kirkwell, Orkney.

¶London (MoW).—Contracts placed by Ministry of Works for week ended May 7:—

Bedfordshire: College of Aeronautics, Cranfield, extension to annexe to hangar No. 3, C. Hutton & Co., Ltd., 9, Station-rd., Woburn Sands, Bletchley, Bucks. *Berkshire:* UKAEA Housing Site 5, Bishop's Enclosure, Aldermaston, carry out erection of additional garages and hardstandings, J. B. Edwards & Co. (Whyteleafe), Ltd., Kenley-la., Kenley, Surrey. *Buckinghamshire:* Creslow Manor, Whitchurch, renovation of roof, Frank J. Mitchell, 25, Wendover-rd., Aylesbury. *Essex:* Fann's Farm By-Pass Road, Purfleet, erection of telephone exchange, S. Cronin & Sons, Ltd., 161-163, Warley-hill, Brentwood, Essex. *Kent:* High-st., Cranbrook, erection of post and sorting office, R. Corben & Son, Ltd., West Borough, Maidstone. *Lancashire:* HPO, Edward-st., Blackpool, alterations and extensions, William Eaves & Son, Ltd., Daggers Hall Works, Vicarage-la., Blackpool. *London:* Craven House, Fouberts-pl., W1, alterations and occupational services, George Moss & Sons, Ltd., Cranleigh Wharf, Lady Margaret-rd., Southall, Middx; War Office, SW1 (Zone I), redecorations and attendance on engineers, etc., Sykes & Son, Ltd., 8, Essex-st., WC2. *Middlesex:* Bunns-la., Mill Hill, erection of a crown building, Pitchers, Ltd., 57, Ashburton-gr., N7. *Staffordshire:* MPNI, Hill-st., Stoke-on-Trent, adaptations for offices, and Pneumoconiosis Examination Board, C. Cornes & Son, Lichfield-st., Hanley, Stoke-on-Trent. *Wiltshire:* MOS, Porton, nr. Salisbury, extension to MRD laboratory building and Allington farm construction of new smoke building and boiler house extension, W. E. Chivers & Sons, Ltd., Devizes, Wilts.

¶London (War Dept.).—Works contracts placed by War Department for week ended May 7:—

Cumberland: Roofing work, Associated Asphalt Co., Ltd., London; road work, Border Engineering Contractors, Ltd., Carlisle; civil engineering, W. & J. Glossop, Ltd., York. *Hampshire:* Building work, Gray, Conoley & Co., Ltd., London. *Kent:* Painting, Allen McDermott, Bradford; painting, Arnold Sharrocks, Ltd., London; roadwork, Val De Travers Asphalte Co., Ltd., London. *Lancashire:* Miscellaneous, Robert Thompson & Morris, Lancaster. *Middlesex:* Roadwork, The General Asphalte Co., Ltd., London. *Somerset:* Tiled flooring, Stanley Stone Chelsea, Ltd., Highbridge. *Stirlingshire:* Building work, D. & J. Ogilvie (Builders), Ltd., Stirling. *Suffolk:* Painting, Donald Humberstone & Co., Ltd., Louth.

Maidenhead.—Erection of 21 flats to be known as Pelham Court. Architect, Alan Stubbs, LRIBA, 18, Lowndes-st., SW1. QS, Crump & Ptnrs., 40, Catherine-pl., SW1. Consulting E, Walter C. Andrews, OBE, MICE, 167, Victoria-st., SW1: *J. M. Jones & Sons, Ltd., Maidenhead, £48,600.

Manchester.—Single-storey factory and office at Irk-st. and Cross Irk-st. for Franz Conrad Brummer: *Spooner & Seth, Ltd., 274, Deansgate, Manchester. Erection of retail store and stockroom at 595-597, Wilbraham-rd., Chorlton-cum-Hardy, for F. W. Woolworth & Co., Ltd.: *Direct Labour Department, Liverpool.

Margate.—34 houses at St. Peter's-rd. for TC: †Miles and Peall, Ltd. (7); †Margate Building and Decorating Co., Ltd. (8); †W. Pay & Sons (6); †Baker & Sons (Margate), Ltd. (6); and †H. J. Hunter (7), £51,411.

Middlesbrough.—St. Anthony's RC School in Cargo Fleet-la., for the EC. Education Architect, K. J. Caton. Consulting engineers, Cairns & Byles, 8, Osborne-rd., Newcastle-on-Tyne: *F. Shepherd & Son, Ltd., York, £123,596 (lowest of five tenders).

Newcastle-on-Tyne.—Motor showrooms, office and store for Taylor & Blacklock, engineers, Pilgrim-st., Newcastle-on-Tyne: *T. Curry & Son, Meldon-st., Newcastle.

New Sarum.—Six bungalows with communal rooms for aged persons for City C. City Engineer, H. Rackham, Salisbury.

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New Sarum.—Eight flats, Culver-st., Salisbury, for City C. City Engineer, H. Rackham, Salisbury. Quantities: H. Rackham.
Jennings & Sons, 6, Wilton-rd., Salisbury .. £8,671
Mr. J. Prichard, Queensbury-rd., Salisbury 8,267
R. A. Moulding & Sons, South Newton, Salisbury .. 8,194
J. T. Parsons & Son, Ltd., Southampton-rd., Salisbury .. 8,081
*A. J. Dunning & Sons (Weyhill), Ltd., Weyhill, Hants .. 7,950

Northumberland.—Welfare centre and ambulance depot at Broomhill, for the CC. County A, C. C. Brown, County Hall, Newcastle-on-Tyne: *R. Slawther, Lesbury, Alnwick, £12,548.

Northumberland.—Child welfare centre at Bedlington Station, for the CC. County A, C. C. Brown, County Hall, Newcastle-on-Tyne: *J. Dodds & Son, Dark-la., Morpeth, £13,460.

Nuneaton.—Stage 1 of central bus station, for TC: *Cromson Construction Co., Ltd., 3, Duns-la., Leicester, £17,583.

Prescot.—Two shops with four maisonettes over at Molyneux-dr., Bryer Estate, for UDC: *Morley & Sons, Hall-la., Huyton Quarry, near Liverpool, £14,857.

Preston.—Ribbleton Hall County Secondary School, for TC: *Harry Wimpenny & Sons, Ltd., Gardner-rd., Prestwich, Manchester.

Ripon.—42 houses at Lead-la., for TC: *Stepney Contractors, Ltd., Beverley, £50,375.

Rotherham.—Extensions to Badsley Moor-la. Primary School, for EC: *J. Dixon, Ltd., Greenfield-la., Rotherham.

Saltash.—Block of eight flats, Grenfell-ave., second ext. housing site, for BC. Engineer and surveyor, A. de Barr. Quantities by Fleetwood Eversden and Partners: *Powell-Thomas & Sons, Ltd., Saltash, £9,888.

Shardlow.—24 houses and eight maisonettes at Copes-way, Chaddesden, for RDC: *J. H. Fryer, Ltd., Derby, £40,740.

Sheffield.—14 terrace-type houses at Greenhill/Bradway Estate, for TC: *W. Memory & Sons, Ltd., Sheffield, £17,367.

Smethwick.—Stage I of extensions to the Council House, for BC: *George Wimpey & Co., Ltd., London, £71,885. Sandwell County Secondary School, for EC: *C. Green & Sons, Ltd., 132, Monument-rd., Birmingham, £140,893. Supply of prefabricated units: *Hills (West Bromwich), Ltd., Albion-rd., West Bromwich, £68,301.

South Cambs.—Ten houses at Guilden Morden for RDC. *R. and H. Wale, Ltd., £14,080.

Stoke-on-Trent.—Extensions to the engineering department of the North Staffs Technical College, for EC: *C. Cornes & Son, Ltd., Lichfield-st., Hanley, Stoke-on-Trent.

Sunderland.—Premises for Jopling & Co. Architects, S. Milburn & Ptnrs., The Esplanade, Sunderland: *Bovis, Ltd., London.

Swansea.—Erection of shop and premises at 233, Oxford-st. for Morgan & Lou, Ltd. Architect, C. A. Hughes, LRIBA, 51, Walter-rd., Swansea. QS, B. W. Ellis, FRICS, 2, De La Beche-st., Swansea: *Griffith Davies & Co., Ltd., Paxton-yard, Swansea.

Swansea.—Erection of new warehouse and shop, etc., at Fisher-st. for the Walpamur Co., Ltd. Architects, Messrs. Henry A. Ellis & Son, F/LRIBA, 6, Wind-st., Swansea. QS, B. W. Ellis, FRICS, 2, De La Beche-st., Swansea: *Bennett Bros. (Contractors), Ltd., Heathfield Works, Carlton-terr., Swansea.

Tannockside.—Tenth development of the Burnhead housing site (104 traditional houses). Architect, Samuel MacColl, ARIBA, Council Offices, Beckford-st., Hamilton West: *Weir Housing Corporation, Ltd., Calder-st., Whifflet, Coatbridge, £141,784.

Wakefield.—Houses, for RDC. Four at Middlestown Butts-la. and six at Middlestown New-rd.: *J. Scott & Son, Coronation-dr., Horbury, £5,628 and £7,878; 16 and four bungalows at Sharlston and 10 at Walton: *T. W. Newton, Calder-gr., Horbury, £25,483 and £13,362.

Wallasey.—Church hall for All Saints' Church: *Wm. Thornton & Sons, Ltd., Liverpool.

Wallsend.—Oil seal factory, Coast-rd., Wallsend, for George Angus & Co., Ltd., Newcastle-on-Tyne. Architects, S. Milburn & Ptnrs., The Esplanade, Sunderland: *Sir Robert McAlpine & Co., Carliol House, Newcastle.

Wallsend.—11 houses on the Low Willington Farm estate, Wallsend: *J. Armstrong, Wallsend, £13,940.

West Hartlepool.—Three additional classrooms at Rift House County Primary School, for the EC. Boro' A, A. G. Sinclair: *T. M. Stonehouse, Ltd., Osborne-rd., West Hartlepool.

West Hartlepool.—First phase of the proposed Brierton County Secondary School, for the EC. Boro' A, A. G. Sinclair, Municipal-bldgs., West Hartlepool: *C. M. Yuill, Ltd., Villiers-st., West Hartlepool (general building work); *Dorman Long (Bridge & Engineering), Ltd., Middlesbrough (steelwork).

Wores.—Dormitory block at Wood Horton Hall, near Evesham, for BBC: *Espley & Co., Ltd., High st., Evesham.

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